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ADDRESSES.

THE NECESSITIES OF A MODERN MEDICAL COLLEGE.

President's Address read at the Meeting of the American Medical College Association, Baltimore, May, 1895.

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In the early history of this country, and as late as fifty or perhaps even twenty-five years ago, large tracts of sparsely settled portions of the United States presented conditions in which it was impossible for the thoroughly educated medical man to obtain a just recompense for the time and money necessarily expended in acquiring his medical education, yet these communities required the services of physicians, and it therefore happened that persons with very slight qualifications took up the practice of physic and endeavored to supply the demands of the community that was unable to obtain anything better.

With increase in population, wealth and civilization the people became more discriminating in their choice of doctors, the communication with distant points was more rapid, the advent of railroads made it easier to secure competent medical men, and consequently the poorly qualified doctors have gradually decreased until at present there are few places in the United States where the citizens do not demand skillful aid for the sick. Fifty years ago there were many thoroughly qualified physicians in the country, and the professors in medical colleges were generally men of excellent attainments, but new and ambitious medical colleges began to confer degrees on students with but little preliminary education, and who had attended but two short courses of medical lectures, with little or no laboratory or clinical instruction, which necessarily gave a low rank to the profession as a whole. It was realized by many, even at that time, that the product of such methods of education was not what it should be, but the necessities of the sparsely settled communities seemed to warrant the course that was adopted, and there can be no doubt that the men thus licensed to practice medicine were far superior to many others who without any qualifications were practicing in various parts of the country. From these conditions it can be readily understood that the medical college of fifty or even thirty years ago was not necessarily a very pretentious institution. A few small rooms over a store, or in an humble improvised building; or in the more pretentious colleges a lecture room arranged in the form of an amphitheater for a hundred or more students, with a small chemic laboratory, an articulated skeleton and a few anatomic plates constituted the whole equipment that was thought necessary for teaching medicine. With the changed conditions that have come about during the last quarter of a century, the college that starts to-day with the equipment that was satisfactory fifty or twenty-five years ago, is held in derision by the profession and secures for its students only the poorest of the low grade men who hope to acquire some dignity through their medical title. Within the past few years medical men have felt more keenly the necessity for proper equipment, and the great body of the profession has risen to a plane where it is ready to support the colleges that require much better qualifications of their students before they can go out with a diploma entitling them to the confidence of the public.

The few back rooms over a store which were adequate fifty years ago to train the prospective doctor; the single amphitheater and little chemic laboratory are no longer sufficient to furnish the accommodations necessary for the better educated men who are seeking a knowledge of the healing art.

In my effort to ascertain what the proper equipment of a medical college should be, I have not relied wholly upon my own opinions, but have availed myself of the ripe experience of others so far as practicable, and I have endeavored to present a consensus of their views.

To-day it is realized that a first-class medical college must have a large and commodious building with beautiful lecture rooms and ample laboratories. The fully equipped medical college of to-day should have two or three amphitheaters, one of which should be large enough to seat the four classes and allow room for a few visitors. The others should be large enough to seat at least two of the classes, since there are many times during the course when it is desirable to bring together the students of the various years. In connection with these, there should be a number of smaller rooms for clinical purposes or demonstrations. Instead of the single skeleton which was used a few years ago by the professor of anatomy, the well-equipped colleges now furnish a large number of skeletons so that each student may be able to study every bone from the specimen in his hand, therefore an osteologic room has to be provided capable of seating, about tables, half of the first or second year classes, with skeletons sufficient in number to provide one to every two students. A well-lighted dissecting room capable of accommodating at least half of the first or second year classes must also be provided, and it is needless to add that ample material is absolutely necessary. The little chemic laboratory which in former years served for the professor to arrange a few experiments, that would now be thought inadequate in the teaching of a grammar school, has given place to a large, well-equipped laboratory capable of accommodating at least half of the first or second year classes. Histologic and pathologic laboratories capable of accommodating at least one-fourth of either of these classes must also be provided, and a bacteriologic laboratory of similar size has come to

be a necessity. Even larger rooms than these would better serve the convenience of the teachers, but they are not necessary if the class is properly divided, and the teacher will accommodate himself to the various sections. With only four years at our disposal, with the vast field to be covered, it is impossible to make skilled specialists of our students, or even to complete their general education; but it is necessary that every one should be well grounded in the rudiments of medical science and taught how to study, and how to utilize his information in general practice for the best interests of his patients. The best medical colleges now realize the necessity of manual training by which their students are taught the practical use of the test tube, the sterilizer and the incubator, and by which they acquire facility with the microscope, the ophthalmoscope, the laryngoscope and whereby they individually learn the proper methods of applying bandages and splints; indeed, training whereby they may learn every mechanical process with which the fully equipped physician must be familiar. For this work additional rooms are needed, each about half the size of the laboratories already referred to.

The recitation system adopted for a considerable part of the work by many colleges is a great improvement upon the old plan of having the class listen to lectures, or read medicine. Where this system has been tried its value is more apparent each year in the better qualified classes that are turned out. It is found that this training of the class which requires them to learn the precepts of some good text-book, even though the instructors may be comparatively young men, produces much better results than when the whole class assembles in a large room to hear even the most eloquent of lectures. It seems to me that the best results are obtained by a combination of recitations with didactic and clinical lectures. The first year about three-fourths of the work should be done in laboratories and class room, the class being divided into small sections. These sections are assigned lessons which they recite to instructors, but about eight or ten times a week they assemble to hear didactic lectures from the professors. In cities of sufficient size to support medical colleges, there are always located a number of ambitious young men fully competent to give the class room instruction when a suitable text-book is provided. These instructors supplement the labors of the regular professors, and in many departments may be called upon to do about two-thirds of the work. This practice gives young men experience and enables them to demonstrate their capacity for teaching and later may become of great value to the college, when its trustees are called upon to fill vacancies in the regular faculty.

In such a course the professor confines himself to the consideration of the more important subjects of his particular department, which are thus impressed upon the class by his individuality and personal experience. At the beginning of the term he should lay out his entire course, assigning beforehand the lessons for each day. This schedule should be placed in the hands of his instructors so as to form a harmonious course. The recitations should embrace not only those subjects which have been assigned from the text-book, but also all those which the professor has considered in his didactic lectures. The necessity for clinical teaching has been so repeatedly impressed, not only upon the teaching corps in our colleges, but also upon physicians and students, that every college does its utmost to furnish suitable clinics, and it is a matter of great importance to this Association to decide what constitutes proper clinical facilities for medical teaching. The advantages that were considered ample until recently can not now be accepted; every college must, therefore, be provided with dispensary rooms and hospital accommodations. I am familiar with the fact that fifty years ago a first-class medical college could be conducted with very little clinical material, but it does not seem practicable to give the instruction requisite at the present time with less than four or five thousand out-door patients annually, and hospital facilities of less than seventy-five to one hundred beds. Where there are few patients some slight advantage may be derived from the more careful study of each case by the students, but unless there is sufficient variety the clinical experience which the student obtains is necessarily limited; therefore, the larger the clinical material at the command of a college, other things being equal, the better will be the instruction that is given to its students. I am aware that these statements may be questioned by professors in some schools where clinical material is scant, but the experience of teachers, both in this country and abroad, will support my views. Without in any way desiring to limit the usefulness of the schools in small cities, I must still maintain that clinical experience is of the greatest possible importance to advanced students. The argument that good physicians were made fifty years ago when clinical advantages were very small is not apposite to the case, when we consider the great advancement in medical science and in the methods of training that have been made within a quarter of a century. I do not desire to discourage professors in small schools from doing good thorough work in training medical men, for I believe there is a field that could be well occupied by colleges, even where adequate clinical advantages can not be obtained, if they would confine themselves to what might be considered the junior department of medical teaching. They could by recitations and didactic lectures ground their students thoroughly in the fundamental principles of medicine; they could teach many of the things that must be learned in the laboratory; indeed, they could fit their students thoroughly to enter the third year of the most advanced medical colleges. In this way they might do a laudable and important work for some of the young men in their vicinity who desire a medical education.

In addition to the requisites that have already been mentioned for a first-class modern medical college, a gymnasium for the cultivation of the physical strength and health would undoubtedly be advantageous in aiding the highest mental training. It would also be very desirable if a large examination hall could be added to each of the medical colleges, where the progress of the student might from time to time be ascertained, that he might the more efficiently apply his subsequent work, and where final examinations could be held under the most favorable conditions for preventing cheating by incompetent students. I wish to urge upon teachers of medicine throughout the country the importance of several review examinations during the course. I am fully convinced, by experience, that such examinations every five or six weeks impress upon the students many things that would otherwise be lost, and as a result such students are infinitely better qualified at

the close of the term than they would be otherwise. I believe these review examinations would be found most beneficial in all departments, not only in showing the student in what he was lacking and upon what he must put the hardest work, but also in giving the professor a better knowledge of his qualifications when he comes for the term or final examination.

The plan I adopt has given much satisfaction. In this plan students are strictly marked on every recitation and an absence counts zero against them At the close of the term the average obtained in the recitations counts one-third, the average of the review examinations counts one-third and the mark obtained on the final examination counts one-third in establishing the grade. This I believe is most equitable to the students, and enables the professor to estimate correctly whether the student is qualified to pass the term or final examination, providing due care is always taken, as it should be, to secure an honest examination.

Within the past few years, I have had frequent occasion to consider the cost of a thoroughly equipped medical college. From these estimates and from the advice I have obtained from others, I have to submit the following figures as a fair estimate of the cost of a medical college properly equipped for teaching medicine in this country at this time.

The buildings for a medical college complete, containing the amphitheaters, clinical rooms, laboratories, and recitation rooms that I have already mentioned (excepting the gymnasium and examination hall) would at this time in most places cost for a total class of 200, from $75,000 to $125,000, if all under one roof; or for a total class of 500 about $150,000 to $200,000.

The price of land would necessarily vary, but in any city capable of furnishing proper clinical advantages it would probably be between $30,000 and $50,000. The fitting up of a chemic laboratory suitable for a total of 200 students in all its classes would be about $3,000 or for one of 500 students would be about $5,000. The fitting up of the histologic and pathologic laboratories would be about $3,000 for the smaller class, or about $5,000 for the larger class. The fitting of a bacteriologic laboratory would be about $3,000 for the smaller class, or about $5,000 for the larger class; making a total of $114,000 to $184,000 for the smaller, or $195,000 to $265,000 for the larger school.

The cost of maintenance of all of these laboratories for the smaller classes would be about $4,000 and for the larger class, about $6,000, exclusive of salaries to the professor or director. The running expenses of the college as a whole, comprising the maintenance of the laboratories would be for the smaller class about $20,000 and for the larger, about $35,000 per annum.

In addition to these expenses, small fixed salaries should be provided, as far as possible, for the young men occupying the positions of instructors, demonstrators, etc. For the professors of what might be termed the non-practical departments, such as chemistry, physiology, anatomy and materia medica, salaries should be allowed adequate to enable them to give a large portion of their time exclusively to their duties as teachers. For the professors occupying the practical departments, it is not so essential that similar salaries should be provided, as there is always more or less indirect return for their services; yet, it can not be questioned that in most cases the best work is accomplished where proper remuneration is received. It is probable that the expense of maintaining the college and paying the professors suitable salaries would not fall short of $45,000 for the smaller or $75,000 for the larger annually. In this connection, I will not attempt to estimate the cost of construction and maintenance of dispensaries and hospitals for the accommodation of patients that must be used in the clinical demonstrations, for these can generally, and should always be secured from charitable persons or the public in return for the services of the physicians to the indigent sick. I may state briefly, however, that the original cost of these would be much greater than that of the college buildings and the running expenses would be correspondingly large.

If the colleges were required to bear these expenses, not one of them could afford the other necessary equipment. In consideration of the question, How the money should be obtained for the necessary expenses of a medical college, I know that I reflect the opinion of the profession when I state that such institutions should be amply and liberally endowed; and no opportunity should be lost to impress upon the laity the peculiar beneficence of charitable bequests to this end and the advantages to be obtained by individuals, families and the community at large from a thoroughly educated medical profession. Until the time when our schools shall be endowed they must depend upon the income from the students for their running expenses.

In this connection I wish to suggest that a professional education should be paid for, and that the average fees charged to-day in the medical colleges throughout the country, are only about 50 per cent. of what they should be to provide the money necessary for furnishing the most complete equipment, and giving the best practical instruction to students; but I do not wish to be understood as advocating uniform prices by all colleges. I believe, however, that if all the colleges in the country would raise their fees 25 or 50 per cent. as might be agreed upon, it would enable them to furnish much better facilities than are now enjoyed by medical students, and the students themselves would be correspondingly benefited.

Administration: As most of the medical colleges in this country are supported and owned by their respective faculties, it has been the custom for their management to be left entirely with these bodies, but since a few of the colleges have received endowments, or have become connected with universities, the question has arisen as to the best plan to be adopted in their administration.

It is urged by some that as the faculty know more of the needs of students than others, the management should be left entirely with them. It is urged again that under such an administration, it is very difficult and sometimes impossible to correct evils that are liable to creep in, because of the relations of members of the faculty to each other. For example, a good professor may be appointed, but in the course of time, growth of intemperate habits or something else may occur to render his further connection with the institution undesirable. In the meantime, he has formed personal relations with the other professors, which prevent them from taking any active part in his removal, consequently he remains, much to the

detriment of the school. In such a case, were the administration in the hands of a board of trustees, it would be a comparatively easy matter to make the necessary change. So long as medical colleges are supported by the individual efforts of the faculty, so long, they must almost of necessity, remain under the control of this body; but when they pass into possession of a university or college, whether as an endowed institution or a State school, the administration will necessarily change. It has been frequently urged, that if our colleges were under the charge of boards of trustees distinct from the faculties, it would be much easier to secure bequests for their endowment. This seems to be a true statement, but the experience of four or five colleges shows that it can not be accepted as an invariable rule.

Many instances might be cited where the faculty control has permitted abuses which the personal relations of the professors has rendered them unable to correct; yet, on the whole I think it must be conceded that the faculty control in the case of an institution that must in some way be supported by its members is the best plan. Under other circumstances the board of regents or trustees of the university, must assume in great part the administration, and the responsibility for the conduct of the college; but even then to what extent the administration should be left in the hands of the trustees or of the faculty is an open question, upon both sides of which many arguments may be made.

Certain institutions assume the whole control of all their departments, allowing the faculty little or no voice in management; others give the faculty greater or less privileges in the general and financial management of the school.

It appears to me the better plan would be, in State schools or in endowed institutions having medical departments, for the board of regents or trustees to have control of the financial management, aided by the advice of a committee from the faculty; while the general management of the school, as to its curriculum, time and duration of terms, discipline, etc., could better be left mainly to the faculty.

In the appointment of professors or instructors, the faculty should have the nominating power but only the trustees should appoint. In the discharge of professors, for incompetence or other cause, the trustees alone should act in accordance with the contract made at the time the professor was engaged, and such information as they might desire from the faculty.

In the general management of the school, I believe it would be well for the faculty as a whole, including not only the regular professors but all the assistants, to consider all matters of importance, but the final action upon these should be left to a limited number of the more experienced members of the faculty who should be an executive committee, with power to act, with the consent of the board of trustees or regents.

Although many good arguments may be advanced for absolute control by the board of regents or trustees of any department under its care, yet I feel satisfied that either a nominating or a vetoing power should be left in the hands of the faculty, or the executive committee of the faculty, in order to promote harmony and the best interests of the institution.

The American Medical College Association has already done much to advance the cause of medical education in this country. If our action is wise, we may in the future, shape the course of the better medical colleges, and is so doing we will sooner or later compel those of lower grade to fall into line, if they wish to receive the support of the profession.

It would be unwise for this Association to take any receding step in the requirements laid down for graduation, and when we consider the effect which increased requirements have had upon the colleges adopting them, there is certainly no reason why any individual member of this Association should wish to take a lower grade than that which we have adopted. The judgment of the profession in this matter is shown in the fact that every advance by a college in the way of requirements of students has been followed by an increase in the size of its classes.

I feel that we have already accomplished all that is necessary, at least for some years to come, as to the duration of the course of study before graduation, although it is of the utmost importance to fix upon the minimum amount of work to be done in this time, and to lay out, as your committee has attempted to do, a suitable curriculum.

Much remains to be done in fixing a high standard of preliminary education. The work of your committee in framing a curriculum that may be adopted by the various members of this Association, I hope will receive your cordial support, at least in so far that its general features may be adopted, in order that uniformity and excellent courses may be secured in all colleges, that desire recognition as first class institutions. The difficulties in the way of deciding upon the preliminary education to be required are many, and I feel that great wisdom is necessary in this body in order to solve the question.

The time has passed with the colleges in this Association, when ignorant young men will be encouraged to study medicine, for their fees, and when schools will maintain scant requirements for the sake of attracting incompetent students to their classes.

In the former Association of Medical Colleges an attempt was made to regulate the fee which should be charged by each; this, I do not believe is wise and I hope the subject may not come up to disturb our councils; or if it does, that no attempt will be made to do more than change the fees by a certain percentage. I believe that the colleges should be left to compete with each other solely upon the merits of their instruction. If a certain body of men choose to give their services gratuitously and to pay from their own pockets the expense of running a medical college, it does not seem to be the affair of any one else, provided others are treated with common courtesy and all adhere strictly to the high requirements adopted by this Association.

In closing, I wish to thank this Association for the honor it has conferred through me upon the college which I represent. I am led to believe that this honor was not a personal matter, either to myself or the college, but that it was an expression of appreciation for the stand this institution has taken upon advanced medical education. My colleagues are firmly opposed to any retrograde step, and I can assure you of their support in a policy of steady and constant improvement, in preliminary requirements of students, and in the methods of medical education.

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THE NU SIGMA NU FRATERNITY—ITS MISSION IN THE MEDICAL PROFESSION.

Delivered by the President, at the Thirteenth Biennial Convention of Grand Council at Minneapolis, Minn., June 3, 4 and 5, 1895.

BY JOHN L. IRWIN, PH. C., M.D.
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Next in organization and domain to that great institution whose power and influence are felt in every hamlet, on every shore, by every river of the habitable globe—the stupendous brotherhood of Masonry—is the secret order confined to the medical profession, the largest medical organization of its kind extant, the Grand Council of which, convening biennially, holds its thirteenth convention to-day with the University of Minnesota Chapter and fraters in the city of Minneapolis, to enact its laws as a central governing body having chapters in the leading medical universities.

Laying claim to an origin at least coeval with the ancient Egyptian priesthood, and deriving its authority from an antiquity that was hoary when Christianity was born, it has nevertheless adapted itself to the needs of modern medicine; and at the close of this, the civilized nineteenth century, it was never so numerous or powerful as it is to-day in this country.

The question of this hour is, What is the Nu Sigma Nu? What its mission in the medical profession?

As man first became civilized on the banks of the Nile, we naturally look there for the first evidences of the existence of a knowledge of medicine. We find that the traditions of the ancients, outside of Egypt, refer the origin of their connection with medicine to that country. Some hold, however, that the Assyrians and even the Phœnicians, at an equally early date, had made medical progress. Ancient traditions tell us that Chiron brought medical knowledge from Egypt to Greece, and became the first Greek physician. His pupil was Æsculapius, about whose history there is some doubt and uncertainty, but he is believed to have lived about 1500 B.C., and whose eminence as a physician caused him upon his death to be deified, and he became the Greek god of medicine, under whose auspices all further researches were made.

The sons of Æsculapius became physicians, and two of them were surgeons in the army of Greece. History tells us that during the Trojan war, a son of Æsculapius, having received a serious wound, was being carried from the battle-field to the ships by Nestor, who is recorded as having exclaimed:

> "A wise physician, skilled our wounds to heal,
> Is more than armies in the public weal!"

The descendants of Æsculapius, continuing the practice of medicine, gave rise to an order of priests devoted to the service of the god of medicine, who were called Æsculapidæ. Aristotle, the greatest philosopher of all antiquity, was a member; and Hippocrates was eighteenth in the line of descent. Thus arose the ancient order of the Æsculapidæ, which came to view in the new world as the Nu Sigma Nu Fraternity, in the establishing of the Alpha Chapter by prominent members of the medical faculty and others at the University of Michigan, Ann Arbor, many years ago. The ancient order, as originally founded in the mysteries of religion and science in Greece, was revived at Ann Arbor, with its rituals and ceremonies.

The ritual, as then accepted, has since been entirely revised—made to meet the present wants of medicine; and was accepted at the convention held by our order during the World's Fair in Chicago in 1893.

Though scoffers challenge its lineage with the medical order of the ancients; and deny its ancestry as far back as Herophilus, the present usefulness of the Nu Sigma Nu Fraternity and its service to the medical profession can not be denied. Its widening influence is its own excuse for existence. It serves the needs of the true physician, appeals to his tastes and to his sense of solemn and obligatory pledges with a largeness and freedom which can not be overlooked by one who fairly and broadly studies medical phenomena.

Medicine has ever been considered the most noble of arts. The essentials for a competent knowledge of medicine were early laid down in the tenets of our order. Only pure souls could enter the temple of ancient medicine.

It is our duty to assist one another in the attainment of all knowledge pertaining to our profession; to be good citizens and conscientious physicians—avoiding contention and strife. To ask nothing but what is right—submit to nothing that is wrong.

We are taught that to be true physicians and loyal fraters we must practice brotherly love, ambition, temperance, honesty, purity, justice and charity. The best principles and character are required of true and loyal members. Our ancient brothers found knowledge and wisdom less common than do we of modern times—but the character and principles inherent to just and good men are found alike in all times.

Our members are obligated to employ their hands only in good work. Our order teaches us that a life of integrity is better than the most famous or successful career lacking that element.

The highest compact we can make with our fellows is: "Let there be truth between us forevermore." We know that noble persons meet on the grounds of sincerity and uprightness.

We are told that physicians take each other's measure when they meet for the first time; and when they meet one upon whom the degree of this order has been conferred, he should need no auxiliaries to his personal presence. His aims should be generous and universal. A scholar may be a well-bred man, or he may not, but a true physician must be. Manners have been somewhat generally defined to be a contrivance of wise men to keep fools at a distance. Emerson says: "Society is very swift in its instincts; and if you do not belong to it, resists and sneers at you, or quietly drops you."

The Nu Sigma Nu presents truth in a certain form. All along our pathway as true physicians, our ritual is useful to us. Most of the true physician's deeds are not recorded, his best acts are seldom chronicled. The true member of our order is he whose actions are the best; and he will live the longest with us. No true physician ever lived without influence somewhere.

Our living principle is the recognition that we are a medical brotherhood. Improvement, diligence and duty are our watchwords. We know that good sense, industry, good principles and a good heart will make a well-constituted mind achieve success in any calling.

We are an association of physicians having common rights and privileges; but we are more—we must have ever with us the symbols of divine presence.

The pot of incense is always found burning at our altar. The Nu Sigma Nu Fraternity seeks to make medical men true physicians—the world makes the so-called "successful practitioners of medicine."

It is said that on all the shores of all the seas there are not two grains of sand formed alike—our order takes the best material from the ranks of the medical students and practicing physicians, and offers them our standard. What air is to the lungs, blood is to the heart, light is to the eye, liberty is to the heart of man—the beautiful precepts of our ritual are to the true physician.

"He only is rich who owns the day." The true physician's time is not his own.

Melody in music is produced because the different sound waves reach the ear at the same time. If sound, whether high or low, loud or soft, were to travel at different rates, confusion and not melody would be the result. The tenets of our order teach us as members to work hand in hand, to achieve the greatest good for the greatest number.

The order of Nu Sigma Nu is not a pastime—a mere diversion—it is an ever living principle. Our ritual exemplifies important truths, one of which is that of a medical brotherhood. It teaches us that there is a purpose in our being; and this purpose we are to apply to the duties of our profession. Emerson says: "The crowning fortune of a man is to be born with a bias to some pursuit which finds him in employment and happiness." Candidates for the degree of Nu Sigma Nu are selected as to their fitness and natural talent for the work of our profession; and as the disciples of our ancient Grand Master they must show a bias to their chosen calling, which is of all callings the most humane and honorable.

The requirements for admission into our order are those which are possessed by the true physician of nature. We believe the true physician is he who best studies nature and her laws. We know that if we are what nature intended us to be we shall succeed—if we are anything else we shall be worse than nothing.

Our ritual tell us it is our duty to stand well in the *front* rank among the progressive physicians of the day. It bids us never to desert our true sphere; our own line of talent. Candidates for our degree must study their aptitudes—to see if naturally bent to medicine as a calling. There is hardly any person who is not qualified to shine in some profession, and it is far better to be at the head of an inferior calling than at the foot of one which the world calls respectable. Although some men, and men of sagacity, deny the doctrine of natural tendencies, and hold that any one by dint of energy may become what he chooses, yet it would seem that while the natural bent may be hard to discern, still—as the boy is father to the man—he generally gives some indication of what sort of man he is likely to become. The fact that one has an original bias, a fondness and predilection for a certain pursuit, is the best possible guaranty that he will follow it faithfully; hence our ritual causes us to select candidates for our degree, whether they come from among the medical students or medical practitioners, by the standard of natural aptitudes, as well as the moral and intellectual conduct required by our order.

Our ritual teaches that it is not the calling or station in life which gives dignity or nobility to the man; but the man who dignifies the station or calling. An humble avocation may be ennobled by the manner in which its duties are discharged; and one may challenge the respect of all whose good opinion is worth having.

Nothing can be achieved without tenacity of purpose. Fraters who are just entering their medical career should remember that the greatest weakness of our young men is fickleness, and where one of them perseveres in a calling which he ought to abandon, a dozen abandon their callings who ought to stick to them. The better the profession the more likely they are to do this, for all kinds of business which are surest in the end—which pay best in the long run—are slowest in the beginning to yield a return.

After a young man has adopted a profession, he should be slow to believe himself to have made a wrong choice, especially after he has acquired much valuable experience; and should try another only after repeated failures in the most desperate attempts to succeed. When we reflect that the man remains the same whatever his avocation—that a mere change of calling will neither add to his strength of mind nor diminish its weakness, we may conclude that in many cases what he is in one vocation he would be substantially in any other, and that he might gain little or nothing by the change. In hours of despondency, or when smarting under some disappointment, a young man is apt to fancy that in some other calling he might have been more nearly successful. It is so easy, while regarding it at a distance, to look at its bright side only, shutting the eyes to what is ugly or disagreeable, that it is not strange that men abandon their professions for others for which they are perhaps less fitted.

Our purpose carries a moral truth with every professional obligation. It says that to be true and loyal members of our order we must carry justice, fair dealing and truth into our consulting room. We must be noble, just and true in the presence of our patients.

Our ritual insists that our professional work will be all that the true physician could desire—not less preaching, but more practice. It is true that our organization is a secret one, but as members we are not bound by obligation to any unworthy member—we are not bound to each other whether we are right or wrong. The pin or badge we wear upon our breasts is not an index to the life behind it, but it should be.

We are taught not to despise the man of only ordinary intellect. There is, perhaps, no mistake of our young men more common than that of supposing that in the pursuits of life extraordinary talents are necessary to one who would achieve more than ordinary success. The average man can not believe that those persons who have made themselves a place in history by connection with striking events, whose influence has been felt through ages in changing the destiny of nations, have been men of ordinary intellectual caliber. Men who can do the little things well are they who go to the front.

Our ritual disapproves of all things unprofessional. Its shining light is character. A French writer on agriculture observes that it is impossible, profitably, to improve land by trying favorably to change its natural character—as by bringing sand to clay, or clay to sand. The only true method is to adapt the cultivation to the nature of the soil; so with the moral and intellectual qualities required to make true phy-

sicians. Exhortation or self-determination may do much to stimulate and prick a man on in a wrong career against his natural bent, but when the crisis comes this artificial character thus laboriously induced will break down, failing at the very time it is most wanted.

Persons who have been at pains to collect statistics in mercantile pursuits in our large cities have found that only three out of a hundred merchants are successful, all the others becoming bankrupt or retiring in disgust. Why is this? Is it not because they have gone into business without business aptitude? The ritual of the Nu Sigma Nu requires of all candidates the moral and intellectual essentials with which to achieve success, not as *medical practitioners*, but as *true physicians*. We know that successful medical practitioners so-called are not always true physicians.

The bane of the medical profession is the tendency of members to prey upon one another. Our ritual condemns this. It teaches us to practice its precepts in the quiet of our consulting room, and at the bedside of our patients as well. It respects honest convictions, but it directs us to give allegiance to no sect, school or 'pathy in medicine. We are to make use of the teachings of accumulated experience, and avail ourselves fully of every aid offered to us by advancing medical science. We are to be true physicians in a broad and liberal sense, and are to practice anything wherever found, which will contribute to an honest effort to heal the sick and prolong life. We are to be rational in our methods, and to assist nature in *her* efforts to cure disease.

We are taught to go forward in our methods of practice, keeping pace with the advancement of medical science, because we know that the medicine of yesterday is not the medicine of to-day; and that of to-day will tomorrow represent the historic and dead past.

"We believe that the laws of nature are not things evolved by any speculative method; but we must discover them in the facts. Before we accept them as methods of practice we have to try them by repeated observation and experiment. In proportion only as they hold good under constantly increasing change of conditions, in a constantly increasing number of cases, and in the greater delicacy in the means of observation, does our confidence in their trustworthiness arise."

What is most needed, in the medical profession of to-day is not schools, sects, or 'pathies, but the elevation of character and intellect, and the improvement of the conduct of the medical adviser. To this task the moral agencies of our profession must apply themselves; ethical considerations must enter into all phases of professional work. As members of the Nu Sigma Nu, it is our duty to carry the grand principles of our ritual into every detail of our daily labors—honesty, truth and commiseration should ever be present in our relations with our patients. It is said that cheerfulness and repose are the badge of the gentleman. Our ritual requires a candidate to be a true gentleman ere he receives the degree and badge of Nu Sigma Nu.

Our duties as members do not interfere with the exalted duties we owe to God, our country, our family or ourselves. Who of our members will ever forget his initiatory ceremony? Our institution elevates the character of the physician by placing before him incentives to goodness—keeping in view the great Golden Rule for our maxim. Our ritual teaches elevating and inspiring ideas of higher life and stricter duty, and if our beautiful precepts were practiced, not only by all our members, but by all the members of the medical profession everywhere, humanity would proclaim the goodness of our plans, the utility of our triumphs.

Fear of disease and dread of death cause mankind everywhere to employ physicians—wherever sick and suffering mankind is it turns to us for relief. This reliance of humanity on our profession to heal its wounds and cure its diseases, naturally brings us in contact on the one side with mankind's greatest, most vital interests, and on the other with the great science and glorious art of medicine, and gives us power in our legitimate sphere almost like that of the monarch. We are intrusted with secrets that would be confided to no other person; and are as honorary members and guardians to every family we attend. No other men can do the good that can be done by true physicians; others may have the will, but they have not the power and opportunity.

Ours is a calling capable of developing all the good qualities of one's heart, hand and brain. Our ritual would have us keep our lamps trimmed and our oil ready, to do the greatest possible good for all who trust to our skill for relief, that we may be in very truth called true and good physicians.

Wordsworth says: "Blend not your pleasure or your pride with sorrow to the meanest thing that feels." Our ritual bids our undergraduate member treat with kindness, consideration and courtesy all his fellow classmates—the one who wears the faded coat alike with the wealthy and more fortunate. It insists that the one who wears our golden badge should be one to whom the world can point with esteem and honor; and whose conduct in his profession is such as to be truly worthy of such recognition. Such, then, being the mission and effects of our organization, can any one doubt there is an excuse for our being? Has not the medical profession given us a hearty welcome? The answer is found in the fact that some of the brightest minds in the medical world to-day are members of Nu Sigma Nu. In the leading medical faculties everywhere are found our fraters; our badge is being worn by some of the brightest students in our leading medical universities. Let the good work go onward until we have a chapter in every leading medical university and center of the world.

As the gem can not be polished without friction, neither can the physician be perfected without trials. Troubles gives sinew and tone to life; fortitude and courage to the true physician. That would be a dull sea and the sailor would never become skilled, where there was nothing to disturb the surface of the ocean. What though things look a little dark, the lane will have a turning, and night will end in broad day. Trouble will disappear before the ever-cheerful heart, as the mist before the brightness of the sun's darting rays.

Let the trials of life come fiercely, if God thus wills—it may be for the best. Gold from half-heated crucibles with dross is found. Each one of us in this life is feeding fuel to his own future, each one tending the crucible in which his own destiny is being molded. If sin and wrong are mingled therein, not thereout can come the elixir of life, but only poison-

ous drugs of suffering and death. Could we but teach the people that not alone in steaming crucibles from precious herbs, but from out the pure air, the glad sunshine, the sweet waters from rivulet and fountain, simple food and temperate habits, an upright walk before God and man, a good conscience—that from these is distilled the real elixir of health, happiness and life—could teach the people such simple truths, we, as physicians, would find our work less arduous; but it is perhaps one of the impossible things.

In vile indulgence every known law of health is defied, and the drunkard and the glutton and the licentious expect to find in some pill or powder that health for both body and mind which can best be found in the God-given medicines of pure principles and a virtuous life, in which alone are distilled the elixirs of the other life which is immortal.

Every institution is an outgrowth of the condition of humanity. Our institution supplies a long-felt want in the medical profession. Our great principles hang, as clusters of fruit, our ritual being the great trunk, whose leaflets permeate the medical profession, and whose attributes do so much to make the true physician. No association ever had a more noble mission than has ours to-day.

The ritual of Nu Sigma Nu, incorporated with the elements of the Christian code, is the unerring rule by which the conduct of its members is tried, laying the broad foundation of that sentiment which bids us to do unto others as we would that others should do unto us. Our institution receives each successful candidate as a brother, and asks him to cultivate the true fraternal relations designed by Providence.

As physicians we know that the greatness of benefits enjoyed by humanity come, not through mighty deeds of valor, but through little acts of kindness. Our profession is not yet perfect; much remains to be done. There is yet much work to be accomplished.

In all lands and among all classes of people, the maternal love is regarded as the most touching of human sentiments. We, as physicians and students of medicine, love our Alma Mater, the institution at which were fostered the higher powers of our intellects and hearts. We love to recall in sweetest memory the events of our college life; but as we grow old in our chosen calling and time will have recorded the flight of years, I verily believe, even more proudly than now, shall we refer to our connection with this great organization.

It is now many years since were revived at the Athens of Michigan the ancient tenets of our institution. I received the degree of Nu Sigma Nu while a medical undergraduate at Ann Arbor. For the past five years I have held positions of responsibility in our Grand Council, and I have observed in that short time the marvelous growth of our order, chapters and members having multiplied until to-day we are represented in almost every part of the civilized world. The work will go onward and upward, until our mission as a fraternity, the elevation of the moral and intellectual standing of medical practitioners in all lands has been accomplished.

I think I ought not to let this occasion pass without addressing some remarks to the memory of those who, having entered into rest, are joined to our Omega Chapter. Their going from among us has seemed like the golden departure of the setting sun. It belongs to the amenities of our profession, to the respect, the esteem, the love and attachment that we have for one another, that the opportunity is given at this time of testifying to their eminent worth, and above all to their loyalty and devotion to the precepts of our ritual.

It remains for our younger members, stimulated by their high attainments, to lend their energies in the direction of the best thought, the best study and the best learning, that they may become qualified to fill the places and follow the footsteps of our departed fraters; and it becomes us all, touched by the loss of our brothers, to soften the asperities of our chosen calling, making our friendship for one another more calm, constant and cordial; that we may, when life is over, leave behind us a memory which, like a sweet perfume, will make pleasant through all time the places in which we have moved.

In conclusion I wish to say: in accepting, two years ago, at our World's Fair convention in Chicago, the exalted position of your Grand President, to which my fraters called me, my first thought was that while I must yield to their wishes to discharge the responsible duties of this, the highest honor in their gift to bestow, yet to none did I yield the measure of my appreciation of the high honor so liberally conferred. Not to my own fitness or worthiness, but to the high regard in which I have ever held this exalted station, did I trust in some slight way to prove a worthy successor to my brilliant predecessors who have, with unsullied honor and unerring devotion, fulfilled the best hopes of our fraters who raised them to the honored position I to-day relinquish.

They need no words of favorable mention from my lips. For the work they did—noble, humane—they live forever in our fraternity's history. Their faithful services and loyalty to our order are written in letters of living light in the hearts of a grateful brotherhood.

I leave the work with you, my brothers, and believe that my successor and his new staff of grand officers will carry our noble order onward and upward in its march of triumph toward a higher and better life.

> "The sweetest lives are those to duty wed,
> Whose deeds both great and small
> Are close-knit strands of an unbroken thread,
> While love ennobles all.
> The world may sound no trumpets, ring no bells,
> The Book of Life the shining record tells."

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ORIGINAL ARTICLES.

AN ORIGINAL OSTEO-PLASTIC OPERATION FOR THE REMOVAL OF LARGE VASCULAR TUMORS GROWING IN THE VAULT OF THE PHARYNX, ANTRUM OF HIGHMORE, SPHENO-MAXILLARY AND PTERYGO-MAXILLARY FISSURES.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOHN A. WYETH, M.D.

NEW YORK.

Mr. Charles Bull came under my notice early in December, 1894, with the following history: In December, 1892, the patient, a student, then 18 years of age, began to complain of some difficulty in breathing through the nose. In March, 1893, he began to suffer from severe pains in his head, was very nerv-

ous, could not sleep, began to lose his appetite, and had to discontinue his studies. In June of that year he was examined by a specialist, a well-known rhinologist, who discovered a growth in the naso-pharynx and pronounced it a naso-pharyngeal polypus. From June 30 to Nov. 18, 1893, treatment was discontinued, as the young man went on a sailing voyage. On November 21 he again visited the specialist. By this time the tumor had grown considerably, and by December 14 the patient was suffering intense pain in the head, complaining that it was a pressure on the brain which caused him great agony. On June 12, 1894, the growth was removed by Dr. R. P. Lincoln with the galvano-cautery, and the patient was immediately relieved. Ten days after this operation he was able to go out of doors, and went regularly to receive special treatment, which consisted in the application of the galvano-cautery to the base of the tumor which had been removed.

In July, 1894, the left cheek began to swell and protrude and the left eye to be more prominent than usual and in the middle of November he began to break down rapidly; became restless, nervous, could not sleep, and suffered from great exhaustion after each application of the galvano-cautery. About this time he was examined as to the condition of his left eye by Dr. J. B. Emerson and Dr. Henry D. Noyes, of New York. The pain was so great that he began to take codeia for its relief. He was now suffering considerably from loss of memory and seemed completely indifferent to every one and everything about him, talked incoherently at times and was evidently fast giving way under loss of sleep, lack of nourishment and the anemia from hemorrhages which had occurred on several occasions. The last operation by the galvano-cautery was made on Dec. 8, 1894. A day or two after this he came under my care. His condition then was not at all satisfactory for a formidable surgical procedure. He was pale, waxy, evidently very anemic, and suffered from double vision; the left eye was wide open and could be closed only with great difficulty; it was protruded and pressed inward, resting partly upon the nose. The left cheek was swollen as if it were occupied by a tumor as large as a hen's egg, and the tissues which occupied the pterygo-maxillary and zygomatic fossæ were pushed outward.

It was evident to me that he was suffering from a tumor which, beginning in the naso-pharynx, had grown into the antrum of Highmore, breaking through the posterior inner wall of this cavity and into the spheno-maxillary fissure and the zygomatic fossa far enough to press upon the blood vessels of the eyeball and produce the venous congestion of the cheek and side of the face.

Considering every point of the case, it seemed to me that nothing was left but to try the hazard of a very formidable operation. A careful study of all the methods usually employed to reach these tumors, convinced me that none of them would suffice for the conditions with which I had to deal in this case. I therefore determined upon the following procedure, which is original and I believe, novel. On account of the vascularity of the parts involved and the hemorrhage which must inevitably occur, and also on account of his anemic condition, the first step was to insert a pipette into the median cephalic vein at the elbow and have ready a good quantity of normal salt solution to fill the blood vessels whenever it might become necessary as the operation progressed. The anesthetic used was chloroform, which was preceded by a hypodermic injection of one-eighth of a grain of morphin, half an hour before the operation, followed by another hypodermic of one-sixteenth of a grain of morphin, ten minutes before the anesthesia. There were present, in addition to Dr. J. A. Bodine, my assistant, and my private hospital staff, Professors Henry D. Noyes, J. B. Emerson, Robert C. Myles, R. H. M. Dawbarn, Dr. Rufus P. Lincoln, of New York City and others.

The operation occurred on December 12. An incision was made beginning along the temporal arch two inches back of the outer angle of the orbit, following the temporal arch to the edge of the orbital cavity, along the frontal process of the malar bone, curving parallel with, and one-eighth of an inch from, the orbital margin, until the point of the knife reached the infra-orbital foramen; then downward to the level of the ala nasæ and outward through the cheek until the point of the knife neared the opening of Steno's duct. This incision was down to the bone from the point of beginning to the lower part of the superior maxilla, where the antrum of Highmore rests upon the alveolar process of the upper maxilla opposite the first molar tooth. Hemorrhage was carefully stopped throughout the entire incision by pressure and by ligating with catgut the larger vessels which were divided, but the soft tissues were in no way dissected up from the bone, except when it became necessary to enter the orbital cavity in its outer half, where the tissues were carefully dissected away from the bone and the eye displaced to the right, (taking care not to press or injure this organ,) until the anterior commissure of the spheno-maxillary fissure came into view. I then hurriedly passed in this a key-hole saw with the teeth turned upward, and rapidly sawed through the junction of the malar with the frontal bone. The saw was then turned over with the teeth directed downward and beginning at the same point, I rapidly sawed through the floor of the orbital cavity, traversing the infra-orbital foramen until I had sawed through the antrum of Highmore at the level of the alveolar process of the upper maxilla. A hook was then placed in the outer angle of the orbit and a quick sharp jerk fractured the zygomatic process of the temporal bone, displacing the side of the face; completely exposing the antrum of Highmore, the zygomatic fossa and the pterygoid and spheno-maxillary fissures. The hemorrhage was tremendous, but was easily controlled by rapidly packing sponges into the wound and making firm compression. So great and so sudden was the hemorrhage that the pulse jumped from about 80 or 85 up to 140, and the patient seemed about to expire in collapse. At this juncture the faucet was turned on and one pint of the saline solution, already prepared and kept so hot that the hand could scarcely be borne in it with comfort (temp. 110° to 120° F), allowed to run into the vein immediately. Under the pressure of this solution the heart immediately rallied and came down to 85 beats to the minute. The tumor was again exposed and with a periosteal elevator lifted out of the antrum of Highmore and its attachments to the pterygoid process of the sphenoid bone were severed. By opening the patient's mouth which action depressed the coronoid process of the inferior maxilla, the pterygo-maxillary fissure and the zygomatic fossa

were well exposed. The whole antrum was well packed with a long wick of iodoform gauze, which was allowed to project at the anterior inferior angle of the wound, from which it was drawn on the third day after the operation. The bone which had been temporarily displaced with the soft parts adherent, was then brought back into position and held there by stitching the soft parts along the line of incision. A bandage and compress were applied in order to maintain approximation. No sutures were inserted in the bones. The patient made an uninterrupted recovery. He is now entirely well and was to have been present at this meeting to be exhibited, but for an unfortunate accident which occurred to him a week ago; he having been by accident struck upon the glass of his spectacles, driving several particles into the conjunctiva and globe, inflicting a very painful and dangerous wound of the right eye. The bones have all united in their normal position; he has perfect use of the eye and, although the filaments of the facial nerve were divided, he still has motion of the orbicularis palpebrarum muscle. Disfigurement from the scar is insignificant.

Beside the novelty of this procedure, there are three important points which I desire to bring out. First of all, is the character of the anesthetic, morphin being almost entirely relied upon. The amount of chloroform taken was only 2 drachms in one hour and forty minutes of narcosis. I have done a number of major operations with this combination of morphin and chloroform, or morphin and ether, in operations about the respiratory tract, and in one instance in removal of the larynx I used nothing but morphin and obtained complete narcosis and anesthesia, the operation lasting an hour and thirty-two minutes, without a drop of chloroform or ether, the patient remaining perfectly quiescent during the operation, suffering no shock, and with no memory of it.

The second important point is the value of transfusion with a salt solution (one teaspoonful to a pint), to prevent collapse and shock under great and sudden loss of blood. During this operation, five pints in all were allowed to run into the veins, and the blood became so thin that practically salt water ran from out the vessels in the line of the incision, showing the red corpuscles were almost exhausted, and yet we were able to make the patient's pulse drop from 130 and 140, the rapid pulse of collapse, to 80 or 90 beats per minute, full and strong, showing that the heart had plenty of volume to act upon and so did well. Prof. R. H. M. Dawbarn, who has done so much to establish this method of transfusion, attended to this feature of the operation for me and rendered, in other ways, most efficient help.

Finally, the persistence of motion in the orbicular muscle of the lids after division of the branches of the seventh nerve.

For the following study of the nervous distribution of the orbicularis palpebrarum I am indebted to Dr. J. A. Bodine, of the New York Polyclinic.

The orbicular portion of the muscle is supplied solely by the facial nerve. This portion, however, is not necessary to the act of closing the eye. In fact, the palpebral portion is quite distinct from the orbicular, and its action is habitually involuntary. It receives nerve impulse from the sympathetic plexus around the cavernous sinus. In addition to the nerve fibers from the seventh, the upper lid may and does get motor impulse thus; the ophthalmic or first division of the fifth receives fibers from the fourth and third, and frequently from the sixth, prior to its division into nasal, frontal and lacrymal. Some or all of these motor fibers may go with the lacrymal branch of the ophthalmic. After the lacrymal supplies the tear gland, it sends fibers to the upper lid. (Gray, page 760.)

Again, the lacrymal not infrequently arises by two filaments, one from the ophthalmic and one from the sixth nerve, thus the upper lid would get motor impulse from the abducens (sixth).

Again, if the ophthalmic has received motor fibers from the fourth, third and sixth as already stated, the supraorbital branch of the frontal nerve which goes partly to the upper lid would carry motor influence, and from this same (frontal) nerve the lower lid could be supplied through the infra-trochlear.

Of course the act of lifting the lid depends upon the levator palpebræ supplied by the third nerve.

ERASION, EXCISION AND AMPUTATION IN JOINT DISEASE.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, May 7-10, 1895.

BY DE FOREST WILLARD, M.D.

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From failure of early diagnosis, from lack of early treatment, and from the neglect of early protection and fixation of inflamed joint surfaces, or on account of the intensity of the tubercular process, a large number of cases of tubercular joint disease still require operative procedures for the safety of the limb or the life of the affected individual. Fortunately, owing to a better appreciation of the conditions, these cases are becoming rare; it being more generally recognized that destructive results are preventable by early treatment; that is, by long-continued protection secured by rest and by effective mechanical devices. Proper management of these cases will result in the saving of a large number of these joints, even if the tubercular bacillus has secured a foothold in the osseous structures adjacent to the joint itself.

Much will depend upon the joint invaded; but the same principles of treatment will apply to all. The treatment may be summed up in the one word *rest*. This condition may be induced either by fixation, by extension, or by both. As a result, however, of the causes first enumerated many joints become so thoroughly implicated by the tubercular process that removal of the offending and dangerous foci becomes imperative.

Erasion (improperly termed arthrectomy) aims to remove by gouge and spoon and scissors the diseased hard and soft parts only; excision or resection goes a step further and takes away not only the implicated structures, but also an outlying area of bone; it is, therefore, still more radical, and aims to keep well outside of the disease. Amputation sacrifices a large portion of healthy tissue lying on the distal side of the diseased joint and is therefore still more mutilatory.

The proper application of these several operations to individual cases, therefore, demands a discriminating and judicious consideration. The decision will vary with the joint involved, the extent and character of the disease, the age and condition of the patient, the dangers of systemic infection, the risk to life,

and the ultimate results to be obtained as regards locomotion.

As erasion is the least mutilating and is both theoretically and clinically so effective an operation, it has steadily grown in favor, especially as it renders possible the continuance of function in a considerable proportion of cases. It is also, as a rule, a less severe procedure; while it leaves excision and amputation, the two more radical operations, still in reserve. Even should the more serious operation follow, the loss of time especially in children, will be more than compensated for by the increased growth of the limb.

WRIST AND ANKLE.

Erasion.—The ankle, wrist, tarsus and carpus may be considered in a single group, as the course of the disease in these joints is closely allied. The complicated character of the articulations involved makes extensive infection of the area very probable, and conservatism is almost universally recognized as the proper course of procedure.

The exclusion of all operative methods, as advocated by some authors, is unwise, and radicalism as to early amputation is equally wrong. A large number of these cases can be saved, and a useful walking member with movable joint can be obtained by the proper application of simple *erasion;* that is, the removal of diseased structures only and the continuance of proper mechanical appliances. Subsequent progression depends largely upon the situation of the foci. In an extra-articular ostitis that has involved cancellous tissue chiefly, the chances of securing good results by erasion without joint infection are excellent. By thorough removal and subsequent injection of anti-bacillary substances, arrest of the tubercular process is common. I have frequently secured excellent results by repeated gougings of small areas as they appeared, and the joint surfaces have entirely escaped contagion.

In young cases, where time is not a very serious matter to the patient compared to the benefit to be obtained, these repeated operations are most helpful, as excellent movable joints are thereby secured. In more serious cases, the disease will involve the tarsal or carpal articulations, and extensive removals may become necessary; yet, in many even of these cases the disease can be eradicated without loss of limb.

For these reasons, conservatism, even though carried to an extreme degree, is desirable, save in those cases where the tubercular process is intense and the resistive power slight; in the latter cases, amputation should be thoughtfully considered. In erasion, knife, scissors and gouge are to be employed until apparently normal bone is reached. Whenever it is possible to avoid the osseous structures underlying the cartilage the operation should be arrested, since cartilage is almost certain to die and implicate the adjoining articulation. It is impossible to be certain when all the invaded soil is removed; but fortunately, nature is able to overcome a moderate number of bacilli, and it is not well to open and invade any unnecessary articulation. When in close proximity to an articulation a certain number of cells, even though left behind will be destroyed by phagocytic action, or a second operation may be undertaken.

Portions of the tarsus and carpus which are liable to infection and can not be reached through the wound may be helpfully influenced by cataphoresis; that is by driving iodoform into the tissues by the positive pole of a battery, using a current of about 5 milliampères. By this method, or by hypodermic injections of iodoform in the region of the joint, the progress of the disease can often be arrested.

The incisions for erasion will vary with the site of the infected area, but for large removals I prefer the long lateral cuts as in excision.

The only guide as to the limit of removal is the extent of the disease. In children, the epiphyseal line should be avoided if possible. Unfortunately, however, in cases which demand excision, avoidance of this line is seldom feasible. The removal of the end of the tibia and fibula, together with the astragalus, necessarily shortens the leg very seriously, and ordinarily results in a stiff joint. In a large number of cases it is doubtful whether the patient is as comfortable as he would be with an artificial limb; practically nothing can be gained in growth if the lower epiphysis is removed.

In the carpus after operation, thorough fixation should be enforced by plaster-of-Paris, or other fixed dressing, which will prevent motion and relieve the resulting inflammation. Drainage, cleansing and local injections of sterilized iodoform oil (10 per cent.) are essential in the after-treatment.

At the ankle and tarsus, the inflamed parts must be absolutely protected from the weight of the body; not for an instant should a step be taken upon the diseased member. Crutches should be used, both before and after operation.

Thorough drainage is necessary and demands the most careful attention to prevent subsequent contamination which will increase the suppurative process. The great fault in such cases on the part of the surgeon lies in his failing to continue asepsis. A wound can escape contamination for weeks and even months, but only by the most scrupulous attention to the laws of cleanliness. I have seen chronic sinuses kept sweet for eighteen months, but it demands "eternal vigilance."

At the wrist the lateral incisions will frequently give good exposure, with the least injury to important structures.

For reaching the tarsus and carpus the only rule to follow is to avoid vessels, nerves and tendons as much as possible and yet secure thorough removal. Many surgeons employ one or two long dorsal longitudinal incisions with transverse cuts if necessary. If tendons or nerves are cut during the operation they should at once be sutured with sterilized silk or catgut chromicized. If one incision only is used at the wrist, it should extend from the middle of the first metacarpal well upward upon the radius. As tendons are divided the ends should be grasped with forceps, marked in pairs.

Excision.—A formal excision is desirable in more advanced cases where the process has advanced to large destruction of bone tissue, surrounding one or more of the articulations, where the general health presents evidences of succumbing to the disease, yet where there is reasonable hope of saving the limb from amputation.

The ankle or wrist joints are first involved ordinarily, although the tarsus and carpus may be primarily the seat. In the latter case, amputation is the more common, especially in tubercle-saturated patients.

In operating upon the ankle, the line of incision

will vary with the exigencies of the case, but I have found that very satisfactory exposure can be made without injuring the vessels, nerves and tendons by two long, lateral, curvilinear incisions, which can be extended as desired by cross cuts when both the astragalus and malleoli demand removal. The peroneal tendons are difficult to hold aside, but can frequently be saved by using a retractor, or by carrying around them a thread of silk, which is less in the way of the operator. If divided, they should be sutured with silk or chromicized catgut. In the tarsus, I rarely make a cross dorsal cut (although the tendons can be sutured), as I am able to make a satisfactory atypical excision through long lateral incisions. I have never employed an osteoplastic operation, even when the os calcis had to be removed.

The most useful saw for joint-work is a key-hole saw made on the principle of Adams' blade, but with a longer cutting face. This can be easily managed and can be manipulated without injury to the surrounding parts. A strong, S-shaped bone retractor is also useful for lifting out the tissues and protecting them. A strong blunt knife is also of advantage in making the dissection.

Amputation is often necessary in extensive destruction of joints and especially in adults.

KNEE.

In children under 12 years of age it is exceedingly important to preserve the epiphyseal line in order to secure growth for as long a period as possible. Erasion is, therefore, preferable to excision in all cases where it can be done effectually. The incision varies with different operators; I do not deem it of any special importance. My preference is the horse-shoe flap with the convexity downward, as stitching of the tendo-patella can be more easily accomplished than suturing of the sawed patella when the straight incision is employed, and better drainage can be secured than when the convexity of the flap is upward; moreover, it gives excellent exposure of the articular surfaces and thorough examination can be made. In some cases lateral incisions alone are sufficient to permit removal when the foci of disease are few. The spoon, gouge, knife and scissors should be thoroughly employed until all the diseased hard and soft tissues are removed; the hollow-handled flushing spoon being particularly useful to carry away the *débris*. Diseased synovial membrane throughout the bursa should be thoroughly removed even though patient search is required. Boiling water may be freely used to destroy the remaining bacilli, or the cavity can be filled with an alcoholic solution of acetanilid or a sterilized glycerin emulsion of iodoform.

In a few cases it will be possible to close the wound without drainage, but where purulent infection is decided, it would be better to drain with rubber tubing for at least a week.

In cases over 12 years of age, and in adults where the destructive process is not too extended, a formal excision is usually preferable, although erasion can sometimes be profitably employed, particularly where infection seems moderate. In the latter case, lateral incisions with scraping and drainage are rarely sufficient.

As to the incision, the same rule applies as in erasion. In an adult, particularly, the incision should extend well above the diseased bone, and all the foci should be gouged unstintingly. A butcher saw with reversed blade to saw from within outward, with proper protection of the parts beneath, is an excellent instrument. Occasionally, the key-hole saw answers nicely, but the angle of removal can not be so accurately determined as with a larger instrument. It is very important for the surgeon to train his eye to make the section at such an angle as to bring the tibia in good line with the femur without a second cutting. As a rule, the popliteal tissue will yield sufficiently to permit the straight position; but if there is still interference the contracted tendons can be divided.

The patella need seldom be removed unless diseased, as it is of service if the tendon is stitched *in situ*.

Amputation.—In children, the cases demanding primary amputation will be few; but occasionally the destruction of bone and joint by saturation is so extensive that removal is the only operation promising hope of life. In adults, the removal of the limb may frequently offer the best hope of life and of usefulness.

As to suturing of the bone, I prefer to trust to external appliances. If plaster-of-Paris is properly applied, good results can be secured, but a bracketed splint for adults is sometimes useful. A plaster cast can be freely opened on either side and the anterior and posterior halves can be removed for dressing, while the limb can still be held in good position without disturbance of the parts.

With thorough asepsis, dressings are infrequently required, and in children there is less disturbance and pain. Drainage tubes should be removed early. After healing, an apparatus should be worn until all tendency to deformity has disappeared.

HIP.

The question of erasion at this joint is one which depends largely upon the amount of disease, the age of the patient, the amount of suppuration, etc. It certainly is an operation far less successful in this joint than at the knee, ankle or wrist.

In cases demanding early opening the pains are often severe and nothing short of complete excision of the upper end of the bone is advisable. In a few cases, however, where the exploratory incision demonstrates fairly good joint surfaces, the foci of disease may be removed by gouge, and the loss of bone substance and consequent shortening so frequently found in excision in young children may be avoided.

In osteomyelitic cases this puncturing of the bone with subsequent drainage is useful.

The disadvantage of erasion lies in the fact that it is almost impossible to decide as to the limit of the disease, and the continuation of the process ultimately demands excision; the latter operation is therefore the one employed by the majority of surgeons, as its results are beneficial in shortening the time of suppuration, and a fairly good walking member is secured.

I realize thoroughly that operative interference tends to disseminate the tubercle bacilli and, if undertaken, the extirpation should be thorough; hence the desirability, as already stated, of complete removal.

The two most practical routes by which the joint is to be reached are the anterior and lateral incisions; the anterior incision is the most suitable for exploration and where sinuses have already formed in this region. This incision is made so as to interfere as little as possible with the muscular tissue, the cut being begun just below the anterior spinous process

and extending downward as far as necessary, the object being to enter the joint between the sartorius and rectus on the one side and the tensor vaginæ and glutei on the other. By this route, both muscles and blood vessels are uninjured. When the neck of the bone is reached the capsule can be divided, exploration of the head, neck and rim of the acetabulum can be made, and the amount of the diseased bone decided upon. A strong blunt knife assists greatly in the process of clearing the bone, and the neck can be divided without injury to the surrounding tissue, with a narrow key-hole saw, guided and guarded by the finger.

The head of the bone is often with difficulty released from the socket. This may be accomplished before section of the neck by manipulation of the femur and the use of a blunt knife or, as I usually prefer, after section of the neck by grasping the fragment with strong lion-jaw forceps. The ligamentum teres, if intact, must be severed. I have found a flexible knife, which can be made to conform to the acetabulum, useful in dividing this structure. All the diseased structure should be removed from the acetabulum and the surrounding area with thorough flushing, and with perfect asepsis the wound may sometimes be closed and perfect union secured. The joint should be filled with iodoform oil. In bad cases both gauze and rubber drainage should be employed for the first few days, the gauze being removed at the first dressing, and the rubber tubing as rapidly as possible.

When the suppurative process is severe, a posterior opening may be made and thorough drainage instituted. This method is most useful in the cases already described, or where the head of the bone has become separated and lies as a sequestrum.

In old or largely suppurative cases the lateral incision over the trochanter is desirable, as it gives a larger exposure of the joint, and when the trochanter is to be removed it is decidedly better. Whenever it is possible to strip off the trochantic attachments of muscles in a comparatively healthy bone, this method should be employed, as subsequent motion is thereby improved. As the femur is often extremely fragile in these cases where the ostitis has extended throughout the entire shaft, great care should be taken not to fracture the limb, especially in making rotary movements.

If the disease seems to have a definite limitation it will be better for subsequent locomotion to leave the trochanter, even if the drainage is somewhat interfered with by its retention. In these cases the drainage may be supplemented by a posterior opening, which often compensates for lost lateral space.

The power to steady the femur upon the pelvis is so important in locomotion that the retention of all possible muscles is essential, consequently I retain the trochanter whenever it is safely possible. I can show cases of excision when the femoral head and neck have been removed through an anterior incision, that can stand upon the toes of one foot without assistance and flex the thigh upon the pelvis beyond a right angle, can abduct and adduct the limb and have no deformity but shortening, a result which is a great improvement upon the condition attained after excision of the trochanter.

The majority of hip excisions, however, leave the patient a cripple for life, which readily accounts for the persistence with which many surgeons adhere to the conservative methods of treatment, and as an ankylosed limb in fair position is usually more serviceable for locomotion than an excised joint, the resection should not be undertaken until it is certain that suppuration will occur or that danger to life will ensue by delay.

The results to be feared are the exhaustion from long drainage, amyloid degenerations and general tuberculosis. While excision aims to remove the dangerous tubercular foci, yet the operation sometimes rapidly disseminates the disease. In a child with a bad antecedent history, an excision should be performed earlier than in a healthy child. Long continued, or very profuse suppuration also calls for surgical interference to avoid waxy degenerations. When in doubt, an exploratory incision is advisable, especially if suppuration is present.

In general, a case which is progressing unfavorably in spite of good mechanical treatment, with evidences of systemic infection, demands interference. Acetabular disease, when manifested by suppuration within the pelvis, is best arrested by thorough removal and drainage. Amputation is usually reserved for adult cases with old and suppurative sinuses and marked caries.

ELBOW.

In this region, erasion is decidedly the best operation for young children: by careful gouging of the diseased areas a very fair member can be secured. Whenever possible, the attachment of the biceps and triceps should be left intact. When the entire bone must be removed the retention of the periosteum, (if healthy) at the points of muscle insertion is advantageous. Quite frequently the cancellous tissue of the olecranon can be gouged without disturbing the insertion of the triceps.

The incision for erasion may be lateral, but a focus in the ulnar is rapidly reached by a cut made directly over the olecranon. For formal excision, a posterior long incision directly over the olecranon, or two lateral posterior ones with cross cut, will give good exposure and save also the ulnar nerve.

The head of the radius is liable to disease, but section of the neck will often permit retention of the biceps. I have not found much difficulty in drainage, even when I have sawed through the olecranon and left it *in situ*. For excision, the narrow saw and ronguer forceps are the most useful instruments in addition to the gouge and curette. Care must be taken to remove every particle of diseased tissue, whether excision or erasion is employed, and the parts should be flooded with bichlorid and afterward with iodoform oil and other antibacillary substances.

Drainage tubes should not be retained too long. Plaster-of-Paris makes the best subsequent dressing, as the cast can be made thick at the bend of the elbow by longitudinal reverses, thus giving strength to the dressing when the windows are cut. Amputation is seldom required except in adults or in the worst class of cases.

SHOULDER.

The rarity of tubercular disease at this joint makes it difficult to speak with certainty as to definite results. My personal experience has been so limited that I can not speak from that standpoint, but my opinion is that erasion is decidedly the best operation for this region, and that it should be done as early as possible, as soon as the presence of pus is determined,

The incision should be made so as to avoid as much as possible, interference with subsequent muscular action, and the vessels and nerves should be left unmolested. I have never seen an amputation for this condition.

CONCLUSIONS.

1. When operative measures are demanded, erasion is the preferable procedure, as it gives less subsequent deformity and results in better locomotion. This operation is especially applicable at the ankle, wrist and shoulder, frequently at the knee and elbow; rarely at the hip.

2. Excision is most useful at the hip. It is also largely employed at the knee and elbow; more rarely at the other articulations.

3. Amputation should be employed in rapid and extensive degenerations at the ankle, knee, wrist, elbow, and in old hip cases which have relapsed after excision.

4. In children, the less mutilatory operation should be first employed, even though repetition is required; but in adults, temporary operations are seldom advisable.

5. The necessity for operative treatment in joint diseases arises from neglect of proper mechanical measures. Protection and fixation of the joint in the early stages of tubercular invasion will nearly always result in a cure with movable joint and good function. These measures together with antibacillary injections and cataphoretic in-driving of iodoform are steadily decreasing the number of cases demanding operation. Motion and traumatism are the chief causes of inflammatory complications in tubercular ostitis, and often result in such an amount of suppuration and loss of bone as to demand removal of the diseased tissues.

EXSECTION OF THE KNEE-JOINT,

WITH REPORT OF A CASE OF COMPLETE DISLOCATION OF THE KNEE, OF NINE YEARS' STANDING, AND WITH SPECIAL REFERENCE TO METHODS OF FIXATION.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. F. FORBES, M.D.

AUTHOR OF "NEW AMPUTATION THROUGH THE FOOT;" LATE PRESIDENT OF THE OHIO STATE MEDICAL SOCIETY, ETC.

TOLEDO, OHIO.

Early in May, 1894, Maggie D., a wholesome young girl of German parentage, came under my care for a slight malarial trouble. In the course of the attendance, which was only three or four days, I discovered that the girl was severely crippled in her left leg; She was otherwise a healthy, robust, well-formed young woman, of 21 years of age; but she was utterly unable to move a step, even about the house, from chair to chair, without the aid of a crutch, which she kept constantly at her side. In attempts at locomotion, or standing, with this leg, the toes of the foot only touched the ground, and the body sank down a foot or more, and gave the appearance as if falling.

Her story was, that nine years before, when 12 years of age, while running on the frozen ground, her left foot fastened in a hole and she was thrown down and suffered a severe injury of the left knee. She was conveyed to the house and left to lie on a couch for a week or two. Then a physician saw her, and after a short and imperfect examination gave the opinion that it was a strain of the joint which would be well in due time. But from that time on, for over nine years, she had not been able to walk a step on that leg.

Examination at once revealed a complete dislocation of the knee in the antero-posterior direction, the head of the tibia being thrown into the popliteal space, and the condyles of the femur down upon the front of the tibia. The leg was bent at an angle of nearly 45 degrees from the line of the thigh; the whole limb was shrunken and poorly developed from its nine years of enforced idleness. There was slight motion at the knee and the shortening from the anterior superior spinous process of the ilium to the internal malleolus in a straight line was five and one-half inches. Part of this, perhaps one inch, was in consequence of the angle at the knee. Her gait in walking with the crutch was, slow, jerking and exceedingly ungraceful. The young woman was keenly alive to her crippled condition, and the fear that she was to go through life in this deformed state caused her almost constant anxiety and unhappiness. When, therefore, an operation was mentioned, looking to her improvement she gladly assented. Near the end of the month (May) she entered the Toledo Hospital, and was made ready for exsection of the bones composing the knee.

Complete dislocation of the knee of nine years' standing. Unable to walk without a crutch, or use the limb during that time.

In considering the methods to be used in the conduct of this case, I resolved not to employ for fixation the steel drills, as advised and used by Wyeth, nor the bone or ivory pegs used by others, nor indeed but little, if any, of the so-called internal or direct methods of fixation. Such methods are in some cases painful and irksome, and in all cases not more effective than external supports. I could not then see, and can not now, how the bones, in exsection of the knee, differ, or should receive different methods of treatment from those in transverse compound fractures of the femur. Neither did it appear that the excessive and cumbersome bandages including the pelvis, generally used heretofore in these cases, were either necessary or advantageous.

Briefly, the operation and after-dressing were as follows: the patient being anesthetized and the limb having been prepared, an incision was carried across the knee from condyle to condyle, and an upper and lower cuff dissected back a sufficient distance. All of the structures in front and under the condyles, in-

cluding the patella and some extraneous osseous material, were removed down to the tibia. The condyles were carefully bared, pushed out of the wound, and one and three-eighth inches removed by the saw. The leg was now well flexed on the thigh, the head of the tibia cleaned and pushed out of the same wound, and three-eighths of an inch of the articular surface of this bone removed. On straightening the leg now, the bones came together fairly well, but the leg was so nearly cut off and was so loose and unsteady that I confess to having had a temporary weakness come over me, and decided to use some internal fixation. Hence, six chromicized catgut ligatures, three on a side, and one silver ligature in front, were applied to the divided bones. The hemorrhage was trifling, and when completely arrested, a few strands of catgut were left in the wound for drainage, the periosteum was drawn down and carefully stitched with catgut, the external flaps treated in a similar way, and the line of the wound sealed with iodoform collodion, the drainage strands only protruding. Two layers of sublimate gauze were next applied, covering the entire foot and leg, reaching well up on the groin. An envelope of absorbent cotton was wrapped evenly around the limb, extending above and below the wound a few inches. The whole limb was now

Ten months after operation (exsection of knee joint); has good use of the limb; walks long distances without crutch or cane.

neatly and carefully wrapped in a well-fulled flannel bandage, and a plaster-of-Paris bandage applied from the toes to the groin. During the application of this latter envelope, strips or splints of wood (ash), five-eighths of an inch wide and one-eighth of an inch thick, were inserted as the binding went on, reinforcing, so to speak, the plaster, and giving an instant steadiness to the limb. These strips were four in number, two under and one on either side of the limb, extended from the ankle to the body, and were permanently embedded in the plaster envelope.

The patient made a good recovery from the anesthetic and operation, and from the hour of her returning consciousness until the present, has repeatedly stated that she never felt the slightest motion of the bones upon one another. So far as her feelings and sensations were concerned, as well as from all other indications by which the surgeon might judge, the fixation was instant, complete and permanent.

The further progress of the case was uneventful. About thirty-six hours after the operation some reactionary fever began. The pulse rose to 120 and the temperature to 104 in the course of a few hours. Pain and restlessness occurred to such a degree that a hypodermic of ¼ grain morphia was given with much relief, and in a few days a nearly normal condition of the system returned, and continued until the patient was discharged cured.

About three weeks after the operation the bandage over the outside of the knee became stained from some internal discharge, and a trap was cut through the plaster down to the wound, when it was found that a thin edge of the upper border of the lower cuff about one-quarter of an inch wide and three inches long across the limb had died, and was being cast off. The parts were cleaned and absorbent cotton pushed in around the wound, which was covered by iodoform gauze, and this dressing repeated two or three times daily, thereby keeping the wound and adjacent parts perfectly clean. In about one week the slough became loose enough to be, and was removed, leaving a perfectly clean wound one-quarter of an inch wide, two and one-half inches long across the limb, and one-half inch deep. In the bottom of the wound the silver wire lay loose, but partly covered by the granulations, and as it was serving no purpose I divided it and took it away. No bone could either be seen or felt in the wound, which was re-stitched with catgut and made quite tight, covered with gauze and bandaged. In about two weeks more the wound was healed, and in seven weeks from the day of the operation the plaster and all coverings were removed from the limb, which was fully healed and appeared quite strong. The patient was now allowed to go about the ward, and in pleasant weather out of doors a little, on her crutches, wearing only a bandage and some slight support around the knee. Within three weeks thereafter the limb had acquired sufficient strength for her to stand upon that leg, and make some little attempts at walking with it. She was discharged from the hospital and from all surgical care and attendance ten weeks after the operation, with a straight limb and one which was already serving her somewhat in walking.

The progress in usefulness and strength in the limb has steadily continued, and now at this writing, ten months after the operation, she walks without crutch or cane, getting on street cars in crowded streets, and walking miles even, without pain or fatigue. In fact, she is acting as a house girl in a private family, and is upon her feet more or less all day. Her gait has also become quite normal, and when walking at a moderate pace, no halt or limp is noticeable.

She wears under the shoe of the affected limb an iron support of just two inches, and uses the limb with a freedom and confidence quite surprising, considering the short time which has passed since the operation.

Two points of practical value are sought to be proved in the report of this case. The first is, that in exsection of the knee joint all internal or direct fixation, especially of unabsorbable material, is unnecessary, and sometimes undoubtedly interferes with the healing process; and that external support by means of the plaster bandage, strengthened by wooden strips, gives instant and permanent fixation. There are two purposes, however, which chromicized gut serves in these cases, namely: these ligatures aid somewhat to keep the bones steady in the handling

which takes place during the dressing of the limb, and also they prevent the crowding in of the soft structures between the ends of the bones. For these purposes, but not for any purpose of lengthy fixation, a few heavy strands of gut may very properly be used. But all such measures as steel drills, ivory pegs, or other similar methods, should be abandoned; for they, as before stated, are often painful and irritating, literally as a thorn in the flesh, and do not serve the desired purpose as well as the method here described.

The second point in connection with this case is, that the practice of extending the bandage up onto the pelvis, while it is irksome and painful to the patient, is not necessary to secure entirely satisfactory results. Many times during the progress of the case I found my patient, on arriving at her bedside, in a half-sitting position, engaged in reading or light needlework, and insisting that this position she knew did not affect the bones of her leg. The partial, even quite limited use of the hip joint, affords much relief to the tedium of the weeks which must pass during the process of bony union. In conclusion, the opinion is here expressed, that by the employment of the methods of fixation and bandaging here described, operators will secure not only the best surgical results attainable in these cases, but they will also receive the grateful appreciation of their patients for rendering their condition as painless and comfortable as possible during the period of repair and convalescence.

FLAT-FOOT—ITS CORRECTION AND COMPARATIVE STUDY WITH THE FOOT OF THE ORANG, CHIMPANZEE, GORILLA AND BABOON.

(ILLUSTRATED BY PHOTOGRAPHS.)

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY B. MERRILL RICKETTS, PH. B., M.D.
CINCINNATI, OHIO.

Of all misfortunes in the way of orthopedic deformities, I believe there can be none worse than aggravated forms of flat-foot. The patients must not only suffer the humiliation of being deformed, but must suffer pain in many instances to the degree of absolute helplessness, and of but little use, unless it be to the instrument makers. They have usually experienced all kinds of treatment, both medical and surgical, have taken all the rheumatic remedies and applied the greater number of patent nostrums for the relief of soreness. When once the deformity becomes painful, either from trauma or the natural consequences of such a deformity, there seems to be no means of relief, especially for that class in which flat-foot is most commonly found. That the cause of flat-foot is primarily rachitic, I am not quite sure, as I believe that there is as great variance in the shape of the feet as there is in any other part of the anatomy. We have differently shaped hands, and why not differently shaped feet? The measurements of the hands vary materially with individuals; sometimes they vary in the same individual. Just so do the feet vary, and especially the arch of the foot; some are higher, while others are lower than the average. If a foot with a low arch should be subjected to an injury in such a way as to diminish the height of that arch, it is to be suspected that the patient will suffer more or less inconvenience from the changes.

I do not wish to be understood as challenging the theory, which many investigators have set forth and advocated, viz., that flat-foot is usually due to a rachitic condition. I believe that rickets is responsible for a large percentage of flat-foot.

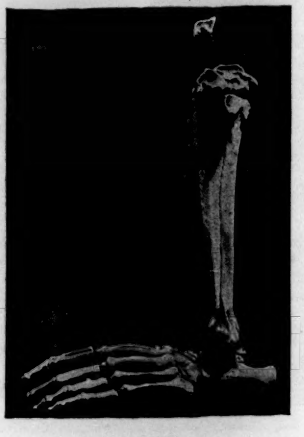
When we take into consideration the bony structure of the foot of man's nearest allies, I do not believe it is safe to say that all flat-foot is of rachitic origin, especially while the effects of trauma are so well known. Man being the only true biped, it is interesting to study the most conspicuous differences between him and his nearest relations, those which but occasionally become erect; though the erect position has caused the foot to become flat and the great toe shortened, and otherwise modified, through the influences to which the loss of power of prehension can be attributed, there is an arch in the foot of man that does not exist in that of his allies. This, however, is not the case in all bipeds, for there are

1. Orang.

still certain savages that retain the power of prehension, as shown in their ability to climb trees. Some apes are now undergoing this evolutionary change. Baboons are to be found among the hills and rocky districts only climbing trees from necessity. In them, we find a foot that is flat to the highest degree. The gorilla runs in a sidling manner and rests on its hands and feet. This, perhaps, is due to the excessive flatness of its foot, the ends of the toes being bent under to take the place of the arch. Some of the hylobates can walk or run upright. The construction of the hands of the quadrumana is of the same pattern as those of man, but not so symmetrical or well adapted for diversified use. Some of the monkeys, the chimpanzee and the orang-outang, walk on the margins of the palms or on the backs of their bent fingers.

This is perhaps due to the great length of the hand, a condition necessary for climbing. However, the greatest climbing monkeys in the world are the

American atales and the Asiatic hylobates, which have rudimentary thumbs, the fingers being converted into hook-like appendages. There came a time when a difference in the construction of the hands and feet was necessary, perhaps due to the manner of procuring substance, on the ground and not in trees; quadrupedal or bipedal. The mastoid process, which is found in the human skull, is the

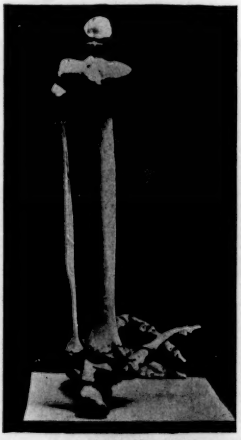


2. Orang.

3. Orang.

result of the erect position of man, and they are almost rudimentary in the next nearest relative, the gorilla. They do not exist at all in the baboon, chimpanzee or orang.

A careful study of the accompanying photographs will, I think, add much to our knowledge of this abnormal condition in man. It is a fact that all children are born with flat-foot, and that the arch is developed as the child reaches adult life. Accidents, together with a rachitic constitution, are, I believe, invariably responsible for the arch not reaching its highest degree. The manner in which the foot is dressed, no doubt, has something to do with increas-

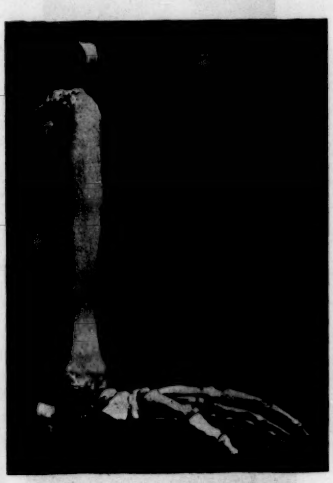


4. Orang.

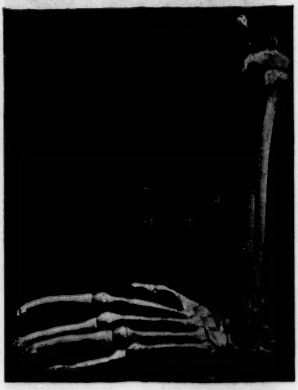
5. Orang.

ing the degree of the arch, for in all savages who have not worn shoes we find flat-foot to a greater or lesser degree. This is so with the Samoans, Dahomeys and several other tribes of the South Pacific, as observed by myself. It does seem, however, that the arch of the foot is increased with the degree of

civilization. We need not, then, be surprised to find that the arch of the foot will not tolerate the excessive endurance so often imposed upon it, and when this arch has reached its degree of endurance neither should we be surprised in not being able to devise some mechanical means that will answer every purpose intended for a high arch. It has been my observation that the fastest runners have the highest



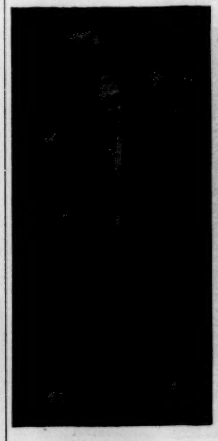
6. Gorilla.



7. Gorilla.

arch. This, perhaps, may have some bearing upon the subject.

This abnormal condition, flat-foot, naturally falls within the domain of orthopedic surgery, and it is only in the most simple cases that any kind of appliance gives any benefit whatever, it being seldom claimed that the benefit is permanent. I do not believe it makes any difference what the cause is in these most aggravated cases; there the remedy would be the same, whether congenital or traumatic. I believe that many of the milder ones are benefited by some one of the many appliances. Since the introduction of clean surgery, much more has been hoped for, and it now remains for us to determine which of



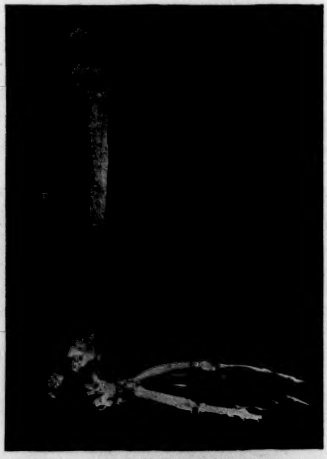
8. Gorilla.

9. Gorilla.

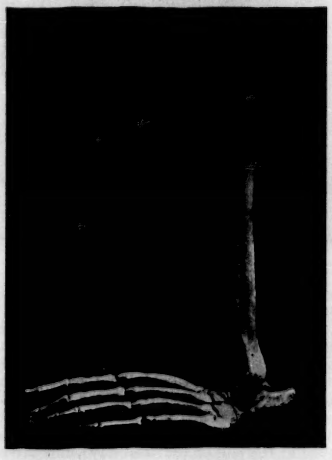
10. Gorilla.

the surgical operations is to be adopted for the correction of the deformity in those cases which have made the subject helpless and practically an invalid with great suffering. Surely the various tarsotomies have been found wanting, also the various operations upon the tissues of the plantar regions. This being the

case, it seems that for the present there is but one of three things to do: 1, to shorten the foot by dropping down the posterior part of the os calcis, thereby raising the arch, as suggested by Gleich, of Vienna; 2, supramalleolar osteotomy (Trendelenburg); 3, amputation of the foot and its substitution by an artificial one. Whatever operation should prove the most desirable, to Golding-Bird, Davy, Ogston, Stokes, Wienlicker, Hare, Phelps and Trendelenburg belong the credit of having been the first to substitute the various surgical appliances with a direct surgical operation. The first of these seems to have been in 1878, only fifteen years ago. Among the later operators we find Willy Meyer, Royal Whitman, Bernard, Roth and T. S. Ellis. In our own country it appears that Meyer was the first to operate, surely the first to operate in the way suggested by Trendelenburg, of Bonne (supramalleolar osteotomy), although he had operated twice in cases of flat-foot, as the result of Pott's fracture, before operating for simple flat-foot according to Trendelenburg.



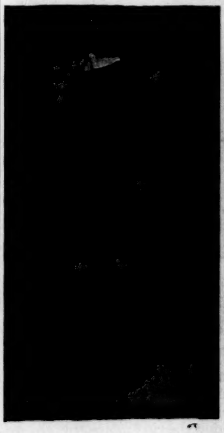
11. Chimpanzee.



12. Chimpanzee.

For my own part, after finding all appliances useless, giving the more aggravated forms no relief whatever, if anything increasing the amount of pain, I have decided that Trendelenburg's operation is the most rational so far presented. In consequence thereof, I operated upon a mulatto, female, age 38, weighing about one hundred and fifty pounds. Although there was a predisposition to flat-foot, she had no inconvenience at all until at the age of 28, when through a misstep in going down stairs she

13. Chimpanzee.



14. Chimpanzee.

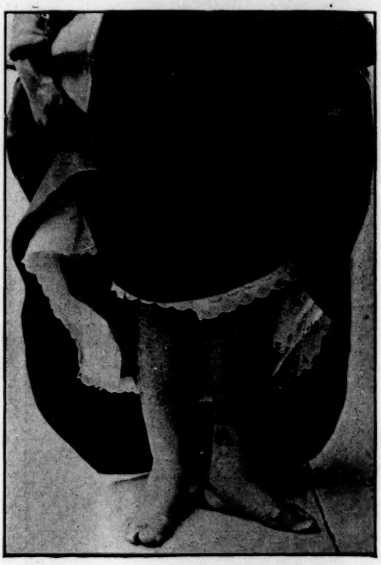
15. Chimpanzee.

broke down the arch of the foot, since which time she has been a great sufferer, not being able to attend to household duties for several months at a time. The patient had been subjected to various kinds of appliances, having had the foot in plaster for several weeks on several occasions. It was not long until she began to have pain in the left foot, the result of overwork. Between the two it was necessary for her to use crutches in getting about the house. I was consulted on November 7, when I advised one of the various operations suggested for the relief of such deformities. It was at this time that one of our most prominent instrument makers declared that he could relieve her trouble. I was perfectly willing that he should be given an opportunity to apply his skill and so permitted him. At the end of six weeks her suffering was unbearable, and she was

16. Before operation.

K. T., age 38, 150 pounds. Both feet inclined to flat foot. Broke down arch of right foot at age of 28. Disabled four out of ten years. All appliances failed? On Dec. 19, 1893, supra-malleolar osteotomy both legs. Left fibula 12 minutes, left tibia 14 minutes, right fibula 11 minutes, right tibia 16 minutes. Fenustrated plaster-of-Paris cases. Complete recovery with double bow-legs. (Trendelenburg's operation.)

anxious that I take the matter in hand and give her relief in some way. Consequently on Dec. 19, 1893, I made a supramalleolar osteotomy on each lower leg, while the patient was under the influence of chloroform. An incision one inch long, directly down upon the left fibula, two inches from the lower end, was made, the periosteum divided and the bone severed with a chisel, subperiosteal. The wound was closed with silkworm gut. Time of operation, twelve minutes. An incision was then made upon the inner surface of the tibia, in the same manner, and the bone likewise divided at a point corresponding to the division in the fibula. This was also periosteal. The wound was closed with silkworm gut. Time, fourteen minutes. The right fibula was divided in the same manner, in a corresponding locality. Silkworm gut used for sutures. Time of operation, eleven minutes. I then proceeded to divide the right tibia. After making my incision it was found, upon removing the rubber bandage which had been used upon the other leg, that the posterior tibial artery had been injured. I was at a loss to know where the hemorrhage came from, but I soon determined that the artery was in an abnormal position, running along the tibia upon its inner and anterior surface. The branch divided was about the size of an ordinary pin, but the hemorrhage was quite severe, necessitating the ligation of the posterior tibial. The hemorrhage once checked, the bone was divided and the operation completed within sixteen minutes. Silkworm



17. Fifteen months after operation.

gut was used throughout, a small piece being drawn through for drainage in each wound.

After the incisions had been dressed and the legs banded with cheese-cloth, plaster-of-Paris was applied by my assistants, Drs. J. V. Ricketts, H. V. Sparger and O. S. Mills, while I held the foot in an extreme adducted position. The left leg was first applied, so I was able to place the right foot in position before its plaster cast became hardened. These casts were removed at the end of fourteen days, and three of the wounds found to have united primarily. The legs were adducted to a greater degree and new plaster dressings applied. The left, however, was more adducted than the right, because it was the more troublesome of the two. In fact, the right foot had caused but little trouble, aside from its being overworked. The wound which had not healed primarily

was upon the left tibia. There was more or less trouble for several weeks when a small spicule of bone was removed. After this time the union was perfect, and the patient has since been able to go about her household duties without pain or discomfort in any way whatever. She is absolutely free from pain, and I might say entirely cured. She has gained considerable flesh, weighing perhaps thirty pounds more than at the time, still she does not complain, but says she has not felt as comfortable and as free from pain since the day of her injury, eleven years ago. Thus, this case illustrates that the end has justified the means, and I look upon it as one of the most gratifying results that could be obtained in a deformity of this kind.

I am free to admit that I look upon supramalleolar osteotomy as the most rational means of treating

18. After operation.

flat-foot that can not be managed with the ordinary appliances. I believe that if the operation is done aseptically it offers more than any appliance, and should be substituted for them without any great hesitancy. The division of the os calcis, as suggested by Gleich, does not, I believe, offer the same advantages. It is not so rational. If either the operation of Trendelenburg or Gleich should prove fruitless, and the patient continue to be an invalid, I believe it is our right to make an amputation of one or both feet and substitute them with artificial ones. There are many deformities that are attended with more suffering and pain, loss of time and humiliation than the wearing of one or two of the most ingeniously constructed artificial feet.

In conclusion I would say:

1. That flat-foot is principally due to one of three causes: (*a*), failure of the tarsus to become arched; (*b*), rickets; (*c*), trauma.

2. That it becomes aggravated with age.

3. That all bipeds are born flat-footed—the arch being an after-consideration.

4. That the highest arches are found in the fleetest runners.

5. That the barefooted races do not have any very perceptible arch or inconvenience.

6. That man's nearest allies, the chimpanzee, gorilla, orang and baboon, have but little indication of an arch. On the other hand, the tarsus in the chimpanzee, his nearest ally, lies upon the plane, while the posterior under surface of the os calcis does not touch the plane to any degree whatever. In the gorilla, however, the posterior part of the os calcis, together with the tips of the toes support the body—the tarsus not touching the plane. This is the case with the orang.

19. Before operation.

7. That the construction of the hands and feet of the quadrumana are of the same pattern as those of man, but are not so symmetrical or so well adapted for diversified use.

8. That the manner of dressing the foot in early life is a prominent factor in causing pain and discomfort in feet that are disposed to flatness.[1]

9. That the degree of the arch of the foot increases with civilization.

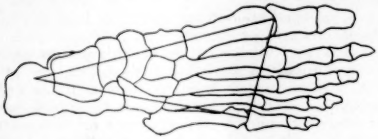
10. That but little benefit can be derived from any kind of an appliance, except in the lesser degrees of deformity.

11. That the aggravated forms of flat-foot should be subjected to the operation of Trendelenburg or Gleich, regardless of what the cause may be.

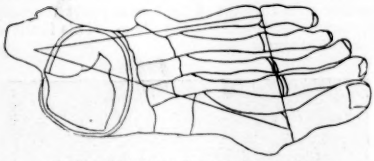
[1] In this connection, I will say that the French Academy of Science has expressed its belief that the small toe in man is becoming rudimentary as the result of the wearing apparel of the feet.

12. That so far as can be determined by observation, the relief given by the Trendelenburg operation has been absolute.

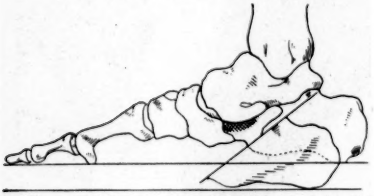
13. All things being equal from a cosmetic point of view, the operation of Gleich (dropping the posterior half of the os calcis) would be the most desirable. Nothing but time and the making of a number of operations by each method will determine their relative merits.



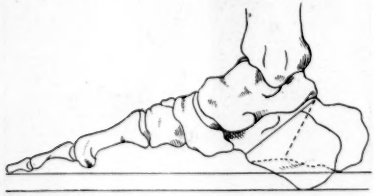
20. Von Meyer's triangle on normal foot.



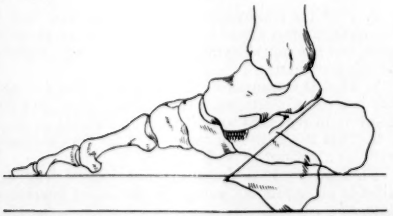
21. Von Meyer's triangle on an abnormal foot.



22. Shows position of post. portion of os calcis after being divided. Gleich's operation.



23. Lesser degree of lowering post. portion of os calcis. Gleich's operation.

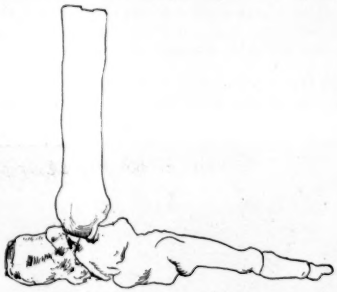


24. Extreme degree of lowering post. portion of os calcis. Gleich's operation.

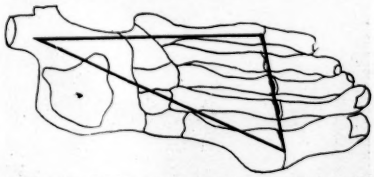
14. That in all cases of Pott's fracture, where flat-foot has previously existed, a cure has always resulted.

15. If the osteotomies are made subperiosteal and aseptically, without complications, no serious results should follow.

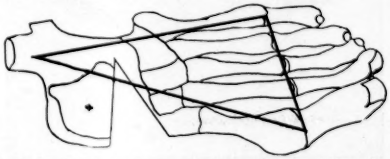
16. That the first plaster-of-Paris dressing which has been fenustrated and reinforced by small ribs of steel, should be removed at the end of the tenth or twelfth day, and a new one adjusted to make sure that adduction is of the proper degree.



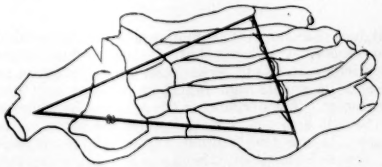
25. Shows how the astragalus is displaced to the inner side of the foot.



26. Shows the situation of the astragalus point lying outside the small von Meyer's triangle.



27. Shows the foot after the removal of the wedge-shaped piece of bone.



28. Shows the foot adducted and the astragalus point on the inside of von Meyer's triangle.

17. That my own experience would lead me to operate unhesitatingly upon any flat-foot causing incapacity by pain or deformity, which could not be relieved by any mechanical devices.

18. That the operation in the case just reported has resulted in all that could be asked for—making a producer out of a consumer.

ON CRYPTOGENIC CYSTITIS AND PYELITIS.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY CARL POSNER, M.D.

PROFESSOR OF GENITO-URINARY DISEASES UNIVERSITY OF BERLIN.

The time is gone when the ever usable and available "catching cold" might serve as an explanation for suppurations and catarrhs of the mucous membranes. We know now that while it may produce a degree of predisposition of the tissues, the real awakening of the affections in question must proceed from precisely definable poisons. These, in the vast majority of cases, are connected with microörganisms or are produced by them.

Thus "vesical catarrh from cold," which formerly was so frequently diagnosed, has disappeared from our field of vision; in like manner, purulent inflammation of the pelvis of the kidney must be attributed to pyogenic presences—bacteria or the products of their metamorphosis—impinging upon the mucous membrane. Their presence is an absolute *sine qua non*, without which any disturbances such as stones, foreign bodies, stasis, etc., can not produce this definite effect.

How do these pyogenic elements enter the urinary passages? As regards the bladder, it is now the habit to think exclusively of infection from without. Bacteria can readily be carried into the bladder from the urethra by instruments, with ease. L. Lewin's and H. Goldschmidt's experiments have demonstrated the process by which they can certainly occasionally ascend to the pelvis of the kidney.

But this simplest of explanations does not always apply. Cases are not at all rare in which cystitis appears, though they have never been catheterized, and with equal frequency pyelitis obtains without ever having been preceded by cystitis. In the latter, post-mortem examination often enough shows an absolutely intact condition of the bladder with severe suppuration of the kidney.

The deduction is inevitable that in such cases the pus producers have immigrated from the circulation. The kidneys serve as drains for the body; any presence of microörganisms causing fluid poisons, must lead to their elimination by the kidneys, and attention has often enough been attracted to the danger to which the kidneys are exposed by the presence of purulent foci in the organism. Pyelitis has frequently appeared after abscesses and furunculoses. But in the majority of instances no heed has been taken of the fact that the healthy body continually harbors immense numbers of pus producers which relatively slight causes can send into the blood and the kidneys. So the intestinal bacteria, preëminently among them the bacterium coli, are entirely innocuous parasites as long as they inhabit their normal domiciles; but as soon as they migrate into other tissues, they act as most energetic pus provokers.

Brunner's declaration regarding strumitis must be designated a most important general law and a very significant one for general pathology. The participation of the urinary passage herein might perhaps have been deduced from the circumstance that of all the bacteria which have been proved to be provokers of cystitis and pyelitis the bacterium coli plays a most important part.

Numerous experiments made by me conjointly with Dr. Arthur Lewin have shown that upon completely tying off the rectum, eighteen to twenty-four hours suffice to produce an inundation of the entire body with bacterium coli. When we injected the easily discernible bacillus prodigiosus into the rectum of animals and ligated it at once and allowed the same time to elapse, we found this readily recognizable organism in all the organs of the body and especially in the kidneys and urine.

This, which refers to microörganisms, as easily applies to fluids. It has long been known that drugs and poisons of most widely different kinds such as iodin, bromin, carbolic acid, corrosive sublimate, quinin, morphin, etc., are as quickly absorbed by the proctodeum as when they are applied subcutaneously. I made a series of experiments with the assistance of Mr. Fanadic, to elicit a closer knowledge of the manner of this absorption, by injections of solutions of coloring matters into the rectum. Aside from other results, precisely the same facts obtained, viz., that twelve to fifteen minutes after an injection into the rectum (for example of indigo-carmine) it could be found in the kidneys and urine.

No one who witnessed these experiments can escape the conviction that they point to a cause for the development of such renal and vesical affections as hitherto have been obscure. As yet, far too little attention has been given to the dependence of these organs upon the intestine. And still, observation of diseases of the urinary apparatus indicates often enough that their origin should be sought for in digestive disturbances.

The future will teach in how far purulent diseases require consideration in this connection. I believe, as has been elsewhere suggested, that chronic forms of nephritis in their narrower sense, will find their explanation herein.

It may suffice, for the present, to invite attention to the conditions under which those many cystites and pyelites, formerly designated as "cryptogenic" may originate. Then, accepting that the bacterium coli can provoke such diseases, the conclusion is inevitable that intestinal affections which can cause them to penetrate the circulation, merit special consideration.

SOCIETY PROCEEDINGS.

Cleveland Medical Society.

Quarterly Meeting, June 28, 1895.

THE PRESIDENT, DR. WIRT, in the chair.

Meeting called to order at 8 o'clock P.M. Reading of the minutes of last meeting. Nominations for membership.

The application of DR. J. H. ROGERS, of Louisville, Ohio, has been approved by the Censors. On motion of Dr. Humiston, the Secretary was instructed to cast the ballot for Dr. Rogers as a member of the society.

PROGRAM OF THE EVENING.

DR. WIRT—At this quarterly meeting we dispense with the report of cases and exhibition of specimens. We now come to the program of the evening. You have all no doubt read in Dr. Wood's text-book on "Therapeutics," his classic description of the experiment upon himself in the use of Indian hemp. In this most perfect description, the Doctor relates that he lost all appreciation of the relations of time, space and surroundings. The Doctor has the happy faculty of hypnotizing his audience, and although the effect is not identical with that of Indian hemp, yet you do lose all appreciation of time, space and surroundings.

It has been my happy privilege to bring about, in a measure, the possibility of this condition for you. I therefore take great pleasure in introducing to you the speaker of the evening, DR. H. C. WOOD, of Philadelphia.

THERAPEUTICS OF HEART DISEASE.

DR. WOOD said:—Gentlemen of the Cleveland Medical Society; if any unfortunate skipper ever took with him a load of coal to Newcastle, before he had time to unload his cargo he probably felt very much as I do to-night coming before you, for I am not at all sure that I know as much about the subject that I am to speak of as many of you do. And I am very sorry that I was not prepared with a series of thorough doses of Indian hemp that I might hypnotize you into comfort and peace during the administration of the nauseous dose that I am about to give you.

I want to talk to you, nevertheless, concerning a disease which, as you know, is everywhere prevalent throughout the civilized world. And I propose first to carry you back to the days of my childhood, and one of my first patients (an old lady probably 85 years of age, who had many a time sat upon the lap of Washington) who was redolent with the memories of Physic and of others of the older day medical men of Philadelphia; and who taught me this great lesson: that it is possible, with a very small amount of valvular integrity, to pass through a long life of labor and usefulness.

Now when we come to look at the why of this thing we can go back to our early childhood days, and remember how in the frosty mornings we crawled out of bed and ran to the old pump under which we washed ourselves. We had to redouble our strokes in order to keep warm. And this is what the heart does; and it is what we call compensatory hypertrophy. Almost all your practical skill in treating a disease of the heart must rest upon practical skill in deciding, not whether this valve is diseased, or whether that valve is diseased, but whether the increased power of the heart has or has not kept pace with the increased work required of the heart.

And here I want to say a word in regard to this question of diagnosis. There are some who think that when the aortic valve is diseased, you should never give heart tonics or heart stimulants; that digitalis is not indicated. Not so, gentlemen. The aortic valve is no different in its functions and its relations to drugs than the mitral valve. It so chances that the mitral disease is commonly produced rapidly during youth, and the aortic disease comes on slowly during age, and in the one case the heart is more prone to be unable to adjust itself to the new conditions, and you get cardiac weakness. . .

It is not a question whether this valve be diseased or whether that valve be diseased, but it is a question of the relation between the work and power.

We want, then, always in every case of heart disease, from the very beginning to guard against this failure of development of compensatory hypertrophy; but before taking up the subject of drugs and their uses in failing heart, let me say a word to you in regard to the effects of failure of heart power. Where does the strain come, or where is the lack apparent? When the heart fails the blood fails to be in the aorta and its tributary vessels; and when the aorta fails and its tributaries are empty the veins are full, and consequently you may take for a sign of failing heart that there is over-venous repletion of the skin, congestion of the lungs and liver and edema of the extremities.

Now I want to call attention to this fact, that it is the liver among all organs, next to the lung at least, that feels this excess of blood in the venous system. Engorgement of the portal circulation is present almost always in every case of heart disease. It is largely for this reason that mercurials are of the value that they are in heart disease. And if I have had any special success in the treatment of this class of cases, it is because I have recognized the value of mercurials. Mercurial purges and corrosive sublimate given in long-continued small doses are of the greatest importance. The fiftieth of a grain or the sixtieth or even the one hundredth of a grain of corrosive sublimate, given with the tincture of the chlorid of iron will sometimes effect almost a revolution, aiding your true heart tonics in the most remarkable manner; aiding, so to speak in the digestion and absorption of the medicine.

I want here also to force upon your attention the necessity of cardiac rest. There has grown up a wide school of therapeutists in Germany who teach that we are to cure heart disease by cardiac gymnastics, climbing mountains, etc. Gentlemen, the heart is an organ that never rests under any circumstances, and do you believe it is common-sense teaching that you can take an organ that has had no rest and is exhausted, and build it up by piling on to the load which nature has put upon it? Not so. Did you ever notice the difference between what we call a fat American or Englishman and a fat German of the better class. The American or Englishman could walk eighteen hours through the snow, climbing mountains. His paunch might be larger than necessary for anybody to carry, but his arms and legs are iron. But take the fat German, he is usually all fat and beer. In the German mountain cures it is not the extra work put upon the heart that cures, but it is the extra work put upon the muscles of the body that cures. Such cases are not instances of genuine failing heart.

Another set of cases are cured by the mountain treatment. These are the cases with a heart working irregularly because the blood is loaded with uric acid derivatives or uric acid-like compounds.

But you take a spare American with bad heart and you put him up the mountains, and you ought to put the lid on the coffin so he could carry it up and bury himself.

Leaving these means, which seems to me of great practical importance, I come to ask your attention to the drugs we have to use in cases of failing heart. I have studied adonidin cactus, convallaria and other of the newer remedies, and I do not think they have real value. I have never seen, myself, any good result obtained from any cardiac drug whatever that could not be obtained from nitro-glycerin, strophanthus and digitalis; and I never had any satisfaction whatever in the treatment of real downright heart trouble with any other cardiac drugs than these three.

First nitroglycerin. Nitroglycerin lays itself aside from the two other cardiacs or cardiac drugs, in the fact that it dilates the arterioles, and lowers arterial pressure. More than that; nitroglycerin probably has a powerful momentary stimulant influence on the heart muscle; but if one passes over in the slightest degree the dose, the stimulant action passes immediately into one of immense depression; kill the animal with nitroglycerin and its heart is relaxed as a wet paper bag; kill the animal with strophanthus or digitalis and its heart is spasmodically contracted.

Then, again, remember that nitroglycerin, like prussic acid, acts only for a few minutes. The profession has been giving prussic acid for years three or four times a day. Now, it is a well-known fact that if a man takes a fatal dose of the acid and survives thirty minutes he almost invariably gets well. All symptoms are usually gone in twenty minutes. A fatal dose may show no influence after twenty minutes. How much influence will there be in two hours, from a dose that at no time has caused any demonstrable effect? Now, it is very nearly so with nitroglycerin; and therefore if you are going to use nitroglycerin at all, use it small doses and at very short intervals. It is only valuable as a momentary pick-me-up, to the heart. It is only useful in the crisis of the attack, and is especially efficient if the attack takes the form of angina pectoris. How it acts I do not know. It is very possible it may be by relaxing spasm, rather than by stimulating the heart.

And now let me call your attention to strophanthus. Strophanthus is a drug which is used in the chase. I believe it is true that every drug used in the chase of animals by savage peoples is one that acts either upon the nerve or muscle, the reason being that the man who chases an animal wants to get him, and wants to use something that will stop him from running away. Strophanthus is a muscle poison. It only acts upon the heart as it acts upon the other muscles, but it so happens that in man the heart muscle is more susceptible to its influence than are the voluntary muscles; and so in human medicine we are able to get a stimulant effect on the heart before we get it on the other muscles. It is a drug, therefore, that acts directly as a stimulant to the heart muscle. But there is no reason to think that, like digitalis, it acts further as a tonic than as a stimulant. Then, again, the muscle of the arteries is acted upon by strophanthus and so it contracts the arteries. It increases arterial pressure, it empties the veins and fills the arteries. It differs, further, in its action from digitalis in being more distinctly diuretic; it is much more prompt than digitalis, acting at once; it is much less permanent than digitalis.

Let us now study digitalis, which, always in proper doses elevates the arterial pressure. How? It does it in the first place by contracting the arterioles. It narrows the blood paths, it lessens the amount of blood space to be filled. It does this in a two-fold way: by stimulating the vasomotor center in the medulla; by acting on the arterioles themselves. Take a terrapin; cut out its nervous system, leave its heart intact; or cut out its heart, then put your fluid under pressure into the arterial system and have it come out from the vena cava. Add a little digitalis and it almost arrests the flow. It contracts the capillaries directly. But it acts upon the heart more powerfully. Every one knows the full strong beat you get from the drug. Especially do

not forget that it stimulates the pneumogastric nerves as well as the heart muscle. It lengthens the interval between the beats. When that beat comes it is a great mighty throb of blood. But digitalis is more than a stimulant to the heart. You take a heart which is beating one hundred and ten to one hundred and twenty times a minute. The veins are everywhere full, the aorta is empty. The diastole has not been long enough for the heart to expand and receive the blood. The heart is continually irritated by impulses coming up from every part of the body crying, Give us more blood. You give that heart, digitalis. You quiet it, you take off its nervousness, you get the long diastole, you get the powerful systole; so there comes a great wave of blood through the arteries. In the failing heart the coronary artery gets little or no blood. At the very time when the heart is being overworked and overworried it is starving. But when the great wave of digitalis action comes, it swells out the aorta, it fills the coronary artery, it goes into every part of the heart, it brings sustenance and food. The old effete material that has been clogging the heart walls is also squeezed out by the powerful contraction of the muscle. Thus digitalis acts as a heart tonic, but it does more than this.

Gaskell has proved that there are two functions or stages in the heart life. What is true of the heart life is true, I believe, of every portion of the human body. A period of functional activity and structural down-tear, alternating with a period of functional rest and structural upbuilding. During diastole of the heart there is no functional activity; relaxation. During systole there is functional activity. During systole this functional activity is accompanied by destruction of tissue. During the period of diastole, or of functional rest, every force in the heart is given to repairing the ravages of function, and there is restoration and up-building.

Now, it is the pneumogastric nerve that occasions the inhibition or stopping of functional activity in order that the structure of the heart, which has been worn, may be up-built. My own belief is that every portion of the human body has behind it this principle. The spinal cord has its inhibitory centers. Every nerve cell has above it a higher nerve cell that inhibits it. However this may be, during diastole the pneumogastric grasps the heart firmly and says to it, Let the workmen build up the ravages in the walls.

Digitalis has the power of stimulating to a point of intense activity the pneumogastric nerve. Expose a frog's heart, give it digitalis, and you will see the strange fight for mastery between the irritated pneumogastric nerve, and the irritated heart muscle. Sometimes the digitalis arrests the frog's heart in diastole. It never does this after section of the pneumogastric nerve. It is when the pneumogastric nerve gets victory over systole, that there is arrest in dilatation. Now, don't you see how digitalis acts in failing heart? Not simply as a stimulant but also as a tonic. It brings food to the heart at the time of its starvation and overwork; it squeezes out of the heart muscle the effete matters which have been lying there; especially does it stimulate the pneumogastric nerve, the trophic nerve of the heart, enabling it not only to quiet the heart into long diastoles, but to hasten during these periods the up-building of the heart structure.

Every now and then in our hospitals we see a case of heart disease in a poor man who has had no rest and no medical treatment; the heart seems hopelessly feeble, but a short course of digitalis brings not only immediate relief but seems to lift the whole man up to a higher plane. It is because the digitalis has really helped the trophic nerve to use the food which has been given to the heart by the use of digitalis to the restoration of the structure which was almost destroyed.

Before applying these considerations to individual cases, let me say a word or two about the preparations of digitalis. It does not make any difference which preparation, provided it has been made from a good drug. I speak now of the officinal preparations of digitalis. Digitalin is always a doubtful theme. Of two specimens one will be soluble, one insoluble; one is called the French, the other German. Digitalin is not of the nature of the active principle. It is a mere extract of digitalis more or less purified. There is a wide-spread belief that the infusion of digitalis is better than the tincture. Not so, gentlemen. The reason of the belief is that proportionate doses are not used. Commonly, digitalis tincture is given in 5 to 10 drop doses, the infusion from a teaspoonful to a dessertspoonful, which is equivalent to about 20 to 40 drops of the tincture. Results are obtained from the infusion because it is given in larger doses.

Sometimes you will find a stomach that the infusion will agree with better than the tincture. Sometimes one that the tincture agrees with better than the infusion. Practically, there is no difference. Again, the tincture of digitalis lends itself fairly well to hypodermatic medication; infusion you can not use.

I do not propose to occupy your attention at all with discussing the ordinary use of digitalis in heart disease. Only to call your attention to certain points. First let me say a word in regard to its employment in acute endocarditis, acute heart disease. Early in the case, digitalis is very rarely indicated. It is more apt to do harm than good. The heart is already in a state of irritation. There are some cases of endocarditis—septic or malignant endocarditis—in which it does not make much difference what you give. But in ordinary rheumatic endocarditis, digitalis does harm. The heart is not weak but over-irritated. Usually tincture of aconite and similar drugs are what you want to try. But when the storm has gone by, the only salvation for the stricken child is the up-building of that heart into a great powerful organ that shall enable it to overcome the leak that has been left in the valve. There is no power to repair that valve. There is no rag that we can push or stick into that broken space. There must be increase of power, and so under these circumstances, so soon as the acute disease has passed by, it is absolutely important to begin the use of digitalis in small doses continually, given with great watchfulness. Recollect here, as in other cases, that when you give digitalis you give a drug which has a persistent influence. The moment you get the slightest effect that moment you stop the drug, for you know that effect will last hours, perchance days.

Passing by the ordinary use of digitalis, let me call your attention to its administration in large doses. And here I beg of you not to misunderstand me; I do not mean to say that the doses of digitalis I am going to speak of are to be used in the ordinary cases of heart disease. But there come times in the life of almost every case of heart disease when the heart fails to respond at all to the moderate dose of digitalis, and when the large dose of digitalis will have a most pronounced and beneficial effect upon it.

A case happened to me two or three months ago. I was sent for by Dr. S. to see a case in consultation. The man, 76 years of age, had one pleura two-thirds full of water. His pulse was, as far as one could count it, 160 to 170 a minute. It was a mere broken confused jumble of pulse beats. The man had been sick eight weeks without conscious sleep; sitting up struggling for breath.

"Doctor," said the physician in charge, "I sent for you to back me up in tapping this pleura."

"I don't think that pleura ought to be tapped. However, I will back you up in doing it, provided you tell the wife of the man that he is liable to die during the operation." This was done and the wife said, "Then he had better die without operative procedure."

"Now," I said, "let me try digitalis. Give that man 40 drops of digitalis now (6 o'clock), give him 40 drops at 8 o'clock, 40 at 10 o'clock, and then hold off."

I went there the next morning. The old man had slept soundly the whole night. Had begun to urinate freely (had had nearly complete suppression), and his pulse was down below 100, perfectly regular. The result was that the man came down to see me in my office not many weeks afterward, and has been going about apparently in good health ever since; of course with a diseased heart.

There are cases in which you have to keep these doses of digitalis up. There is a certain large graveyard in the suburbs of our city. Years ago when I had worked out these thoughts to my satisfaction, I was sent for by an old German doctor, to take charge of a patient whose window overlooked this graveyard, while he went on his vacation. The lady was sitting up in bed or on a chair in perpetual horrible orthopnea. This old German was a very plain-spoken man. I asked if I might try the use of very large amounts of digitalis. The doctor explained my wish to the patient, saying: "All right, Sarah, what the devil is the use of your sitting there for weeks? This young doctor says he will either put you in the graveyard or get you down stairs. You had better be in the graveyard than as you are, so you had better let him try."

She said: "Very well. I would a good deal rather be in the graveyard."

I gave her about 2 teaspoonfuls of tincture of digitalis a day. She was down stairs in two or three weeks.

Not long after that I had another case. A banker somewhere from the West. He had been taken acutely ill, or

rather chronic disease blossomed out in full while he was attending to some business in the East. He had been under homeopathic care for three or four weeks in perpetual orthopnea. I put him on enormous doses of digitalis, and the result was that in one or two weeks he was able to go home.

Now, gentlemen I mention these cases to you, not simply as examples of the results that can be obtained by large doses of digitalis, but to point out to you a further lesson.

The ending of the first old gentleman has not come yet. But it so happened one day in the course of some months after, the woman whom I put upon the digitalis had been going about attending to her household duties and she went to market. Returning with a light basket in her hand she fell dead over her own lintel. And the banker from the West went back to his office and gathered together the gold, but it so happened one day that as he was reaching forward to put his clutch upon the yellow coin he fell dead across his counter.

Some would say it was the digitalis killed them. But such is not the truth. It is not digitalis that arrests that heart. It is the power of digitalis to quiet the nervous condition of the heart; to feed up the heart as far as may be, to keep it going as long as it can, until at last there comes a time when there is not one grain of power left in the heart. When the power had all gone out of the banker's heart it ceased. That is the effect of digitalis. When you venture to give these large doses of digitalis in the treatment of cases of heart failure, tell the patient, or at least the friends of the patient, that this thing will come. Remember, the patient will live longer than if left to himself. It is better to live months of comfort, and perhaps a year or two, and then drop dead in the harness, than to struggle in agony for a shorter period.

A few words in regard to the so-called cumulative action of digitalis. Digitalis may be given through a length of time and suddenly there comes an explosion of its action. I remember a case of pleurisy I had. I was using digitalis to stimulate the kidneys and get out the fluid. I went there on on Sunday; the pulse, which had shown no effect of digitalis, had fallen from 106 to 80. I stopped the digitalis. Monday the pulse was 70; Tuesday the pulse was 60; Wednesday the pulse was 40; Thursday the pulse was lower still, and I began to wonder what the pulse would be on Saturday. But when the pulse got down somewhere between 30 and 40 there it stopped, stayed so three or four days, and then came up.

I have never yet seen but one case hurt by the use of digitalis, and that was a case of mistaken diagnosis. A lady had been under the care of two or three of the best doctors in Philadelphia; was supposed to be dying. I was sent for and she was placed under my care, as her husband did not believe in consultations. She got worse. I kept on with the digitalis until it suddenly occurred to me, This is a case of digitalis poisoning. I stopped the digitalis and she began at once to come up. I never told my secret and she thinks I am a great doctor. There was no true heart failure; only neurasthenia, from gastric catarrh.

This cumulative influence comes on at certain times: first place, when the drug fails to act upon the kidneys; second place, when it is already in the body. You have a case of dropsy; you tap; reduce the pressure. Instantly the blood vessels take up the serum; that serum is loaded with digitalis. Then comes digitalis poisoning. It is not the drug that is in the body, but the drug that is in the blood that affects the heart.

A practical induction is: When you expect to tap a man suffering from heart disease or from any form of dropsy in which you have been giving digitalis, cease your digitalis for a length of time before you tap him.

Years ago I noted one class of seemingly incomprehensible cases. Cases of mitral valve insufficiency; in which the heart seemed to be in the last stage of weakness; cases where I said to myself, This man will be picked right up by digitalis, but when I gave the digitalis there came increased heart dullness, and an anginous horror that instantly demanded the withdrawal of the drug. I was sure that I was right in my diagnosis that the heart was weak and failing. I was sure that I was right in my physiology that digitalis was a heart tonic and stimulant. But when I put the two things together they did not work. The cases always went from bad to worse. At length I worked out the problem. The cases were, all of them, cases of mitral insufficiency, and they were really cases of exceedingly weakened auricle; an auricle that was toned down and thinned out until it was little more than the thickness of paper. Now, under the influence of digitalis there came back a reflex wave through the mitral valve and that met the blood pouring in from the pulmonary veins. The thin, paper-like auricle could not stand the double pressure. It could not stand the strain of the blood pouring in and the blood pushing back through the insufficient mitral valve by strengthened systole. Whenever this condition exists nothing can be done. It is the shadow of death, and death very near at hand.

Digitalis has been much used in treatment of aneurysm. Gentlemen, it is death to aneurysm. . . . . The reason surgeons have not killed more cases of aneurysm is because they do not use digitalis in large enough doses to have any effect. Digitalis is the most dangerous drug known in aneurysm. You give a certain amount of strychnin, or a certain amount of atropin and get, let us suppose, 20 per cent. of increase of arterial pressure; but the pulse wave is small. Digitalis puts up the arterial pressure 20 per cent. but it does more than this. It makes a long diastole. It makes a great wave of blood; not a little tiny thread, but a great mass of blood rushing with full force down the arteries, coming into the chamber enlarged by atheromatous degeneration, stretching and tearing everything before it. It is the immense distension due to the large blood wave, under the influence of digitalis, which makes the drug especially dangerous. This is not merely theory. Some years ago a man was picked up in the street and brought into the hospital. He had a pulse you could scarcely feel; temperature 4 or 5 degrees below normal. I ordered digitalis to be freely given. At my visit the next day the man was sitting up enjoying himself, talking and laughing. I put my hand on his pulse and I got the tremendous big strokes of digitalis. As I was directing that the digitalis should be stopped, the man sprang with a great cry up into the air; there came a crimson flood from the mouth and nose, and the man dropped back dead. That man had an aortic aneurysm; we had ruptured it with our digitalis. At the autopsy the aneurysm was found torn right across. And, therefore, gentlemen, when you have an aneurysm to deal with, don't use digitalis.

Let me speak of the contrast between digitalis and veratrum viride in the treatment of pneumonia. You have a case of pneumonia in the first stage. You give veratrum and yon lower the heart action. More than that, you open out every blood vessel in the body. Here is the blood in that lung in excess. You can put the whole of the blood of the man in the abdominal vessels. You take away the blood from the lungs; and put the whole body upon one plane of dilated arterioles, so to speak. That is what veratrum viride does in the beginning of pneumonia.

If you have a lung in a man in which the general system is adynamic, you can get at the same result in a different way. You have general relaxation. Now you give ergot freely which contracts the blood vessels. Bring about the same result by contracting the blood vessels in the lung and the whole body.

Digitalis comes into use in pneumonia in an entirely different stage. How does that man die in advanced pneumonia? Very often from paralysis, exhaustion or arrest of power of the right heart. What is the reason? Because the right heart, heated almost to death by the fever, has to force blood through paths narrowed by the pressure of the exudation upon them. You give digitalis; it stimulates that right heart. It does not cure the pneumonia, but it keeps the right heart up to its work, and by and by the pneumonia subsides.

In answer to a query, Dr. Wood further said: in regard to this question your President has put to me about the use of alcohol in etherization. Some years ago there was reported a case wherein a woman had cardiac failure from etherization, and brandy was given her. Six or eight hours after the etherization she died of heart failure. Is not this wonderful? This woman had a pint and a half of brandy; that, not the ether, was the cause of death.

What is the difference between ether and alcohol? Only a little water; physiologically there is no difference. Then, again, you might as well give ether as alcohol to a failing heart. This is not mere theory. Test it on the animal. As you give alcohol, less ether is required.

By no dose of alcohol . . . . . can you bring up the arterial pressure of the animal poisoned by ether. You might as well give hypodermic injections of ether in the failing heart of etherization. Here I see some of you smile; there are surgeons fatuous enough to do even this thing. Gentlemen, does it make any difference to the heart whether a drug which is in the blood has been picked up in the left leg or the right leg, in the lung or in the buttock? Is the heart a sentient being that it can tell where the blood got the ether? Why not crowd the ether on the sponge and give

it to the man by the mouth. Sometimes these hypodermic injections do *seem* to arouse the patient. It is because they are a local irritant and reflexly excite the heart, the same as holding ammonia to the nostrils. But just so far as the ether is absorbed just so far it aids in overcoming the heart.

The only drugs which, in these failing insufficient hearts, I have found to be of value are strychnin, cocain and digitalis. Digitalis should be given hypodermically. More than this; I have found in the lower animals that the lowered pressure under chloroform or ether is brought up wholly by digitalis injected into the veins. More than this; I have found that digitalis given before the anesthetic has a remarkable power in steadying the heart. Whenever you have any reason in any case to especially fear cardiac depression from the use of the anesthetic, precede the anesthetic by your digitalis. And precede it long enough so that the heart shall be under the influence of that digitalis when the anesthetic is given.

And with digitalis always use strychnin in the accidents of anesthesia. It affects the respiratory function probably more than it does the cardiac function, but it certainly has some power in backing up the action of digitalis on the heart.

And then there is another drug which is of equal value with strychnin, and which can be associated with strychnin; and that is cocain. It acts upon the respiration and circulation about as strychnin. In the chloralized dog you can raise the respiration by as large doses of strychnin as can be given without producing convulsion, and then by giving cocain get a further increase of the respiration. You will find in cases of adynamic, advanced pneumonias, where you want to sustain the respiration, as well as the circulation, that the combination of strychnin and cocain is of especial value.

British Orthopedic Society.

First Provincial Meeting of this Society held at Liverpool, May 24, 1895.

After lunching together at the Adelphi Hotel, the members visited the new Royal Infirmary, the Children's Infirmary, and the Southern Hospital, at the invitation of the several staffs. They were then entertained at dinner by Mr. Robert Jones, after which they adjourned to the Medical Institution where the ordinary meeting was held.

A large number of living cases were exhibited, representing torticollis, talipes treated by tarsectomy, wrenching, tenotomy, etc., also numerous other cases of knee, hip, and joint diseases; several casts and stereoscopic slides were on view, the latter shown by Messrs. Robert Jones and Thelwall Thomas, being most instructive as showing the advantage of stereoscopic photography in the demonstration of orthopedic measures.

Mr. Robert Jones was elected to the chair. Several candidates were balloted for and elected.

Mr. Tubby, of London, read notes of a case of talipes equino-varus, drawing attention to the rotation inward of the lower end of the tibia and fibula which complicated these cases. He had performed osteotomy of the lower end of the tibia, the limb being afterward put up in plaster with a satisfactory result.

Mr. Robert Jones agreed with Mr. Tubby that the rotation was due to an alteration in the shape of the tibia and fibula and he had for years successfully treated it by osteoclasm above the ankle joint and in this way, by inversion at once corrected the deformity. A comparison of the position of the patella with the great toe was evidence that the deformity was below the knee.

Mr. Murray of Liverpool, considered that the fault lay not in the tibia, but above the knee.

Mr. Luke Freer of Birmingham, held that the inversion was general, the knee and hip being equally involved and secondary in origin to the foot inversion; he had always met the difficulty by passive manipulations and occasionally instrumental aid, by which the knee and hip were rotated outward, as it were, simultaneously with the daily after-treatment of the talipes itself.

Mr. Freer showed photographs of a case of extreme rachitic genua valga; the girl had worn instruments for four years with little benefit and when 8 years of age, he had performed a double MacEwen with the best results, continuing retentive apparatus, however, for two years after, to prevent relapse. A week ago she had turned up again after a lapse of eight years, with most pronounced genua vara, evidently due to rachitis adolescentium. He emphasized the necessity of mechanical control after osteotomy and the fallacy of very early operation.

Mr. Murray thought the case would be best treated by another osteotomy.

Discussion on the Treatment of Intractable Talipes Equino-varus.

Mr. Robert Jones opened the discussion. He maintained that it was always an avoidable condition, and that the relapses so often alluded to were generally due to carelessness on the part of the patient's friends, and sometimes on the part of the practitioner. The relapses frequently occurred because the surgeon did not recognize their causes; these were: *a*, insufficient correction of deformity; *b*, superincumbent body weight on outer side of tarsus; *c*, slack and lengthened state of muscles opposed to the deformity. Frequently surgeons were content to merely twist the foot until they were able to get it comfortably into the straight position, and yet so soon as the little patient put his limb to the ground, one could see that the flexor muscles of the foot had not recovered their powers and the result was that the whole body weight fell on the outer side of the tarsus. The foot is not cured until the patient can voluntarily place it in the position of valgus, and he should not be allowed to walk until the foot is so far recovered that each step he takes tends to improve the position of the foot; in other words, until the act of walking becomes a beneficial factor in the correction of the deformity. It was impossible to lay too much stress upon the influence in the maintenance of deformity, or its recurrence, exercised by the overstretched muscles on the convex side of the deformity. In proof of this, Mr. Jones instanced his treatment in infantile paralysis, where contraction had existed for some years, and their influence upon the lengthened opponent muscles. After discussing the anatomy of inveterate club-foot, Mr. Jones traversed Phelps' statement that the bony deformity in intractable cases did not by any means keep pace with the deformity of soft structures. He maintained that it was impossible for the foot of a growing child to remain twisted without corresponding bone changes and he drew attention to the osseous deformity in lateral curvature in knock-knee. In discussing the methods of treatment, including that of manual correction, subcutaneous division of deep structures and tendons, forcible wrenching, tarsoclasis, open incision, linear osteotomy, removal of astragalus or cuboid tarsectomy and Pirogoff's operation, he found it difficult to criticize all the methods, and he wished to insist upon a very often forgotten fact that the goal might be reached successfully by different routes. Some surgeons, like Wolff, of Berlin, were able to show extremely satisfactory results where the hand alone was used, and this in extremely intractable cases. Phelps had described uncommonly good results by means of his open incision and Mr. Jones had personally seen some very useful feet after Lund's excision of the astragalus. That evening Mr. Murray had shown what could be done in suitable cases, by well performed tarsectomy. After describing Phelps' operation, Mr. Jones argued that it had more effect on the varus deformity than on the equinus, and the cases he had seen after the operation seemed rather deficient in the power of putting the heel to the ground.

Phelps' argument for open incision seemed founded on the ground that it was indiscreet to work in the dark, but at the same time it was noticeable that he had very considerably modified the length of his incision, so that it became almost essential by reason of the small incision now made, to introduce out of sight the tenotome for the division of some of the deep structures. Mr. Jones had performed Lund's operation on six cases and wedge-shaped tarsectomy thirteen times, but although his results were fairly satisfactory, he had discarded the operative treatment for that of forcible wrenching. He felt the difficulty in that inevitable percentage of failure after incision of a wedge to make up the deficiency by subsequent methods, as the foot became so firmly ankylosed and resisting. He maintained that operations such as those described should only be done by surgeons of experience under strictly antiseptic precautions; that the foot should be over-corrected at the time of operation and that the appliances should be worn for a considerable time afterward. He felt certain that all cases of club-foot could be successfully treated by Thomas' wrench, and that the failures which had been reported were due to the

fact that surgeons often did not learn its method of application. He then described in detail the mode of twisting by means of that instrument. He always divided the tendo-Achilles before proceeding to further treatment, as its contraction often had to do with the varus deformity as well as that of the equinus. He rarely found it necessary to divide any other tendons. Occasionally several wrenchings were preferable to forcing the foot into position at once. After each wrenching the foot became quite capable of being molded into any position. In the after treatment he preferred the application of a cheap iron shoe to the plaster appliances now commonly in use and he described the simple device of adding an iron flapper on the outer edge of the boot in order to complete the eversion of the foot during walking. The rotation inward of the leg he corrected last of all by osteoclasm. This internal rotation could always be avoided if one began treatment early by twisting in their long axes the tibia and fibula outward, grasping the lower end with the right hand and the upper end with the left. The cases he had shown that evening, all of them of a very extreme character, were sufficient proof of the efficacy of this method of treatment; a method which, while leaving intact, and training to a proper shape, the tarsal bones, left a pliable foot as the result. There was very little pain attached to the method. Treatment had only to be continued for a few months and there was absolutely no risk involved. This could not be said of the cutting operations with the inevitable percentage of mortality. Surgeons were too accustomed to be shown only the successful cases of tarsectomy, but in private and hospital practice he had frequently come across some of the dire disasters.

MR. TUBBY thought that in the normal state the action of the extensor and flexor muscles was not alternate and distinct, but that the muscles acted in concert. There was a wide field for observers for investigating the condition of the equilibrium of muscles; he never found tarsectomy necessary but had seen some very bad results from it. Cases were sent out too early and relapses occurred not seen by the surgeon; he considered the wrench a very satisfactory instrument in intractable cases, the ligaments in youth being elastic; he was opposed to Phelps' operation; excessive division of vessels favors gangrene of the parts. The operation appeared very pretty on the table and very ugly afterward.

MR. MURRAY said that in the treatment of congenital talipes equino-varus, all were agreed that the equinus part of the deformity should be dealt with by division of the tendo Achilles, but all were not agreed as to the treatment of the varus. He stated his objections to Phelps' operation and also to wrenching. The wrenching was painful and had to be often repeated, an important matter with poor patients from a distance. Of the several operations practiced, he personally preferred the removal of a wedge-shaped piece from the outer side of the foot, irrespective of bones or joints, and was well satisfied with the results he had obtained. He had performed the operation forty-two times in thirty-four patients. The dangers from the operation were practically *nil*, and much time and expense were saved, as the patients walked well without instrumental support in less than three months.

MR. LUKE FREER was of opinion that the very few cases of intractable club-foot with which surgeons engaged in orthopedic practice had to deal were, as the chairman had observed, a reflection on the patient's friends or more often on the practitioner. Severe relapsed cases treated by tenotomy and daily manipulative after-treatment would usually be well, with pliable feet, under three months, and he showed several photographs of cases so treated; he was in favor of the wrench rather than tarsectomy in cases where the hand was not sufficient; he agreed with the use of simple retentive apparatus easily removable for manipulation. Of all the cases of tarsectomy he had seen, he could not call any one really satisfactory; the best were "stumpy."

MR. NEWBOLT, of Liverpool, said that osteoclasis should be done through the tibia and fibula, not through the femur.

MR. ROBERT JONES, in reply, referred to the length of time in treatment, which was slight after the first wrenching; no relapse occurred if the child was not allowed to walk before the weight was borne on the inner side of the tarsus, instead of the outer. The chief advantage of his method was safety. Private patients would invariably prefer a non-cutting operation. There would be very few intractable cases of club-foot if medical men would learn how to deal with them sufficiently early.

The next meeting will be held during the British Medical week in London, in July.

The Ohio State Medical Society.

Annual Meeting held at Columbus, May 15, 16 and 17, 1895.

(Continued from page 162.)

FIRST DAY—AFTERNOON SESSION.

DR. EDMUND C. BRUSH, of Zanesville, Ohio, read a paper on

FRACTURES OF THE SKULL.

The paper was a supplementary report of nine cases. The former cases, ten in number, had been treated by immediate operation, by a secondary operation and on the expectant plan. The deductions pointed clearly to the propriety of immediate operation, provided any depression could be detected.

In the supplementary report, the cases present many different phases of fractures of the skull and the results therefrom. All of those operated upon recovered, and in each case the operation was performed without delay and without any regard to the symptoms, good or bad, present. The one idea was to remove all pieces of bone that impinged upon the brain, whether the brain resented the pressure or not. Due attention was given, to the physical condition, so far as it was influenced by shock. The idea that "in children the toleration of the brain to pressure is such as to justify delay in elevation of the fragments unless alarming symptoms supervene," is probably true, but what is to be gained by waiting? Prompt action will probably prevent alarming symptoms and dangerous secondary complications. In the operations reported, the trephine was not used. With an elevator and a pair of sequestrum forceps much can be accomplished. This is not said in the way of depreciation of the trephine. It is an instrument of untold value. The anesthetic used was the A. C. E. mixture.

There is no need of repeating text-book literature on rules and methods for operations on the skull. How to prepare the patient for the operation, how to operate, and how to treat the cases after operation, are familiar matters to all. There is, however, a new idea being advanced or experimented with. Perhaps it might be well to say that an old idea is being revived in a new form. To find some hard substance to replace the bone removed has been a source of much thought in the past and it is likely that the near future will solve the problem. This may be Senn's decalcified oxbone. It may be disinfected celluloid plates, or it may be the removed pieces of skull or even transplanted pieces of skull.

In looking over the literature on the subject under consideration, I was forcibly struck with the following found in "Bell's Surgery," 3rd volume, edition of 1796—nearly one hundred years ago!

"In the management of fractures of the skull attended with depression, the indications are:

"1. To discover as exactly as possible the site, the course, and the full extent of the fracture.

"2. To obviate the effects of the injury done to the brain by elevating or removing all the depressed parts of the bone.

"3. To endeavor to complete the cure by application of proper dressings and attention to the after-treatment."

DR. JUDSON DALAND, of Philadelphia, Pa., read the following paper:

THE PATHOLOGY, DIAGNOSIS AND TREATMENT OF MALARIA.

(Illustrated by lantern slides). After presenting a number of views of normal blood and of malarial blood, giving a short description of each, Dr. Daland said: You may ask of what practical value is all this study? This organism is always present when a patient is suffering from malaria, and therefore may justly claim the position of acting as the cause of this disease. It is important because by the study of this organism one may determine if the treatment employed is successful. It is perfectly manifest that so long as this organism is present the disease still exists. Very constantly the question as to the diagnosis of malaria arises. And the differential diagnosis between malarial and other diseases that produce the characteristic symptoms of chill, fever and sweat are constantly before us. The cases of gall stone associated with intermittent fever are more readily recognized as such, and not treated for months as intermittent malarial fever. Tuberculosis with intermittent fever is also more quickly diagnosticated. When the examinations are properly made, the absence of the parasite proves the absence of malaria, as well as its presence proves the presence of malaria. Hepatic abscess or anything which produces intermittent fever, which may at times be suspected to be malarial, can be clearly separated by this important sign. As soon as we can know certainly an individ-

ual is suffering or not from malaria, our course of action is plain.

Passing from a discussion of its enormous diagnostic value, let us think for a moment regarding the influence of this body upon the blood, and the impression that is created in our mind by a study of this organism while the patient is under treatment. In the first place, it is important that the patient shall not receive quinin when you are experimenting with this organism. This alkaloid not only changes the organism but has an absolutely destructive effect upon it. It is the hope of every physician present that we may multiply these remedies very rapidly.

The study of the effect of a paroxysm upon the blood mass will give us valuable indications regarding the treatment. If one takes a patient suffering from intermittent fever and examines the blood, one usually discovers that the mass of corpuscles has been reduced from 100 to 60 per cent. Furthermore, the hemoglobin will be found reduced to 50 or 45 per cent. We therefore recognize that the blood mass is greatly reduced, first as regards the quantity of the red blood cells present, and second as regards the quantity of hemoglobin present. We also note the loss of hemoglobin is more than the loss of red blood cells. I think we would expect this, from the knowledge of the effect of the parasite in destroying so many millions of these cells. If you study the blood before and after a paroxysm, you may find the amount of loss at each paroxysm. This has been done with the result that about 10 per cent. of the red blood corpuscles of the body were found to be destroyed, and 10 or 11 per cent. of the hemoglobin was lost at the same time. In the interval between the paroxysms a considerable quantity of this loss was made up by the remarkably rapid manufacture of red blood cells and hemoglobin, so that they are kept at about an average of 50 or 60 per cent. of red blood cells and hemoglobin.

This being true, it seems to me the first indication in treatment is the destruction of the parasite, which can be best accomplished by our old friend, quinin. The bisulphate is perhaps the most soluble form of quinin, and should be given in conjunction with acid, preferably when there is a certain amount of food within the stomach. At certain periods of its development the parasite is less vulnerable than at others. It seems to me when it is just forming, at the point corresponding to the chill, or just before the chill, if we can have circulating in the blood a sufficient quantity of quinin, we can destroy the parasite; while if we postpone this until later, the plasmodium is in the red blood cells and the quinin does not come in contact with the plasmodium. Therefore it is important that the patient shall have the qninin prior to the expected chill. The remedy that stands next in importance, and one that I administer at the same time, is Fowler's solution, in 3, 5, or 5 drop doses. And in view of the great loss of hemoglobin, it would seem the best results can be obtained by the administration of a remedy that would tend to restore the hemoglobin readily, and the remedy which we believe exerts this influence best is the freshly prepared carbonate of iron. Therefore, I would suggest that 20 or 30 grains of bisulphate of quinin be given in the twenty-four hours. Of course, the indication regarding building up the general health is very apparent.

DISCUSSION.

DR. KINSMAN—How many of these plasmodia will you find on an ordinary slide?

DR. DALAND—The number of parasites varies with the severity of the case. In a well marked quotidian or tertian intermittent fever, you may find as many as we have found here. Each of these represents a quarter of the field. You may have two or three, or sometimes as many as five or six of the parasites in one field. But in the cases of malaria you see here in the North, the rule is quite contrary. They oftentimes require a search of ten, fifteen or twenty minutes to find a single plasmodium; and in other cases they increase in number. So you may say the number may be as many as one to six, and again you may have to search ten or twenty minutes to find a single body. Another form of malaria, which I did not mention, is the flagellated form, which could not be detected by the photograph.

DR. FULLERTON—Is there any culture fluid in which this plasmodium may be or has been cultivated, and have any experiments in regard to the inhibitory or destructive effects of any of the malarial remedies been tried in the test tube?

DR. DALAND—So far as I know, every effort that has been made to cultivate this particular form of microörganism has met with failure. And furthermore, the studies made in regions where the malaria is so prevalent, have not given satisfactory results, in detecting a microörganism like this in the soil or damp places, where malaria is present. Consequently, not having found it outside the body, the experiments are limited.

DR. TUCKERMAN—What is one of the best monographs on the technique of the subject?

DR. DALAND—I think in v. Jaksch's "Clinical Diagnosis."

(To be continued.)

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 157.)

REPORT OF THE COMMITTEE ON CONSTANT CURRENT GENERATORS AND CONTROLLERS

was given by DR. W. J. HERDMAN, Chairman.

You will remember that the work of this committee as it was defined at the time of its appointment two years ago, was to investigate the apparatus which was designed for the generation and control of constant currents suitable for physicians' use, whether these currents were derived from primary batteries, secondary batteries, or dynamos; and also those appliances which were constructed for the purpose of modifying and controlling such currents so as to adapt them to the various needs of therapeutic work.

As was reported at the last annual meeting, the committee sought to secure a basis for such investigation by conferring with physicians who had long used electricity in therapeutics, and learn from them what sources they relied upon for their currents and in what manner they modified or controlled them, and get their opinions concerning the value of the apparatus which they were employing. It was hoped that enough information would be secured in this manner to enable the committee to take a very broad view of their field of work and draw their conclusions from statistics covering this entire field. It was the purpose to put to the test by laboratory methods the value of such apparatus and opinions as were derived from this correspondence and to display in the reports of such investigations a comparison which would speak for itself as to the superiority of one method over another. The attempt at getting such information from physicians through correspondence was a practical failure at the time of the last report and, although the attempt has again been made during the year just ended, with what has been thought improved facilities at the disposal of the committee, we must again report that we have not met with the assistance from our fellow-practitioners throughout the country that we had hoped for in this direction. We, have, therefore, been compelled to use our own judgment in selection of apparatus for investigation, and in this we have been largely guided by our personal knowledge of what is in use and by information derived from the makers of apparatus as to what is having most ready sale at their hands.

At the last meeting the committee reported progress with reference to many of the investigations which they had been pursuing. This has been continued with much diligence throughout the year and in addition to this we will be able to present some other material. A part of these investigations have been carried on at the electro-therapeutic laboratory at the University of Michigan under the direction of the chairman of the committee. Dr. Newman and Mr. R. G. Brown both members of the committee have been pursuing separate investigations at their respective homes, the latter having been placed in charge of the physical investigations on secondary batteries. These gentlemen have been requested by the chairman to personally present their reports. Dr. Campbell, the other member of the committee, has had in charge the correspondence with physicians and, although he is absent in Europe he has reported to me that his work has been diligently pursued but with indifferent results, as I have already said.

PRIMARY BATTERIES.

Aside from the investigations upon the durability and manner of action of the primary batteries that were reported one year ago, there have been added to the list the Vole battery of fifty cells and the chlorid of silver battery of fifty cells. As has been stated heretofore the cells of these are coupled in series, each cell being exposed clearly to view, so that the condition of its contents can be seen at all times, and then they are subjected to exactly similar methods of

investigation for the same period of time, the aim being to conform to the circumstances that would attend the work in the physician's office as nearly as possible. The main characteristics to which we look for determining the value of these sets of cells are: 1, the amount of constancy of electro-motive force; 2, the slowness of polarization and rapidity of depolarization; and 3, the durability of the elements subjected to chemic action for the freeing of electric energy. Time alone can determine the durability of these various forms of batteries and it is the purpose to continue these tests without renewing the elements until the energy in the cells is completely exhausted. I herewith submit a table of tests[1] of these various forms of stationary battery plants that have been made during the present year. It will be seen by investigating the last of these tests that many of the batteries are yet far from being exhausted, so that in all probability it will be some months before the question of durability will be settled. When the entire number of cells that have been submitted to us have ceased to act, it will then be the proper time for summing up the comparative excellences in action of these forms of cells. Yet it will be apparent to any one who chooses to glance over the tests, as they are here recorded, what is the capacity of any one set of cells upon the basis of the requirements for superiority that we have above mentioned. A copy of the results of these tests has been sent to each manufacturer who has furnished the Association through its committee with batteries for examination, so that they have the opportunity through the comparison which is here presented for making improvements needed upon the cells which they have been placing upon the market. In the judgment of your committee this is the true and just way of aiming to advance the appliances for electro-therapeutic use, since it avoids making us in any offensive way to discriminate in favor of one or the other manufactured article, yet gives all manufacturers an opportunity to compare their work with that of others who are aiming to supply the same trade, and has the effect of stimulating them to their best endeavors.

There are now some thirteen forms of primary batteries being subjected to these investigations in the laboratory at the University of Michigan. These forms of cells represent the majority of those that are most in use among physicians. Almost all of the batteries included in the thirteen sets mentioned are composed of cells too large to be employed in portable work and are suitable only for stationary plants in hospitals and in physicians' offices. The varieties of primary portable batteries are few. Among those most generally in use are the dry chlorid of silver cell battery manufactured by the Baltimore Company and the liquid cell of bichromate of potash solution with zinc and carbon elements, manufactured by various other companies, most notably by the McIntosh Battery & Optical Company of Chicago. A sufficient number of these cells can be inclosed compactly in a small space so as to furnish a comparatively high electro-motive force for bedside work and are therefore suitable for portable batteries.

CHLORID OF SILVER DRY CELL BATTERY.

A fifty cell portable battery was received from this company in June, 1893, with the request that it be subjected to the customary use to determine its capacity and efficiency. It was supplied with a Willms rheostat, a circuit breaker, a pole changer and a switch for throwing in the number of cells needed in groups of ten. The battery was put to work in my office July 10, 1893. At this time certain of the individual cells were tested with a standard voltmeter and found to register from .95 to .98 of a volt each. The character of work that was done with this battery was such as it is advertised to do; electrolysis, epilation and treatments upon the body where for the most part high body resistances are introduced into the circuit. At the beginning of this work the entire fifty cells registered a voltage of 48; at the end of the year, Aug. 26, 1894 the following record was taken:

The	first	10	cells	registered	10 volts.
"	"	20	"	"	19 "
"	"	30	"	"	15 "
"	"	40	"	"	19 "
"	"	50	"	"	22 "

It will here be observed that the voltage of the entire fifty cells did not much exceed the first twenty. It was found that the cells between twenty and thirty registered but 5 volts; between thirty and forty, 9 volts; between forty and fifty, 9 volts. There was, then, evidently some internal resistance which, when the entire number of cells were thrown into action, succeeded in greatly lessening the voltage. It was also found at this time the Willms rheostat acted very unequally, the entire resistance of the instrument being in the first eighth part of the circuit, the remaining part of the circuit giving no additional resistance. These changes in the character of the direction of the battery had so far diminished its efficiency during the year that it was thought best to send it back to the makers for investigation and report. The following letter was received from them, when this examination was made:

"We find that the elements are not one-quarter exhausted. This is not your error, however, and we will endeavor to explain why it occurred. At the time we sent you this battery we were using domestic glass for our cell cases and, although we used every possible precaution, such glass will crack at times when least expected to do so, which it did in the case of several contained in your battery. The cracking of the glass does not affect the elements contained in them but permits the small amount of moisture to gradually evaporate and increases the diameter of the cells which serves to develop the slightest cracking. We are extremely sorry this should have occurred in your battery (for my part I am glad it did) for although it is liable to occur to any instrument containing the same character of glass as this, still we have sent out dozens of them without any trouble. However, being conscious that it is likely to happen at any time, we made provision to avoid it in the future, quite a time ago, and now all our cases are of Bohemian glass and are very fine. We propose to take no chances in your case and therefore place new cells in the machine. We have also made very important improvements in the current controller of Willms rheostat and shall also give you another one of these also."

I may say, when this battery was returned to me there came with it one of the imperfect cells that had been referred to and I found the condition to be as was stated in this letter. It is to be hoped that this company has succeeded in overcoming this serious fault by the means which they have indicated. The new rheostat also I find to be uniform in its resistance and a much better instrument than the one which it replaced. The voltage of this battery since it has been returned is 47, a little less than 1 volt per cell and this voltage is divided up equally in the various groups of cells which compose the battery. The cells which are used with the chlorid of silver battery are the smallest in size employed in any portable battery and the manner of arrangement is such that it makes this a very convenient instrument. If the cells can be so perfected that they will be entirely reliable and the controller can be made equally reliable, this will be made a very perfect apparatus for a portable battery. I have found it a suitable form to employ in cases of diagnosis where I am in need of a constant current, as it can be carried to the bedside without inconvenience or impairment of its action in the transit.

Another line of investigation which the committee has carried on is that of testing the action of the various forms of rheostat and controller.

RHEOSTATS AND CONTROLLERS OF THE CONTINUOUS CURRENTS.

Water Rheostats.—We have found a variety of this form of rheostat in many batteries used by physicians. The character of resistance which it offers to the current is much the same in all, but the amount of resistance is determined by the purity of the water employed and the amount of it which intervenes in the course of the circuit. The methods which are employed by the different instrument makers for varying the amount of intervening liquid differ considerably and upon this mechanism and the ease with which it is managed depends the efficiency of the instrument. The simpler this mechanism is as to freedom and equability of movement, the better the instrument. It should be so arranged that the current is modified gradually. Certain of these water rheostats are constructed so that the interval of liquid is maintained by a moving rod held in position by a set-screw. At times the slightest movement of this set-screw is sufficient to drop the rod instantaneously and so suddenly throw out all resistance. This necessarily gives a shock to the patient in the circuit and is both disagreeable and hurtful. Others of them are so constructed as to permit of a very slow and gradual change in the amount of intervening fluid and require too much time for making even very slight changes in variation of resistance. The main objections, however, to this form of rheostat are that the current passing through the fluid causes decomposition of it by electrolytic action and so

[1] This table is entirely too voluminous to be printed in the JOURNAL, but a copy can be obtained by applying to the Electro-Therapeutic Laboratory of the University of Michigan.

produces corrosion of all metals with which it is brought in contact, if these are corrodible; if they are non-corrodible they are necessarily so expensive that the instrument can not be sold for a price that will enable many to purchase it.

Another, and to my mind, a main objection, is that it is a very indefinite character of resistance, there being no means of measuring the amount of resistance which is thrown into circuit and so leaves it open to the fault of inexactness in measurement, a feature in our work that we are endeavoring to overcome.

Graphite Rheostat.—Of this form of resistance we have had a number to investigate, differing very much in construction, and while they are free from some of the objections that we have just mentioned as attaching to the water rheostats, they have certain deficiencies of their own, depending partly on the nature of the material and the manner of their construction. Yet on the whole we have found this class of rheostats to be superior to the liquid form. But they are likewise indefinite as to the amount of resistance which they furnish in the circuit and by reason of the wear which friction produces they are inconstant, even when the same extent of graphite surface is thrown in.

Among the graphite rheostats that have been subjected to test by the committee I mention the Willms, the Vetter, the Massey and the Gebhart, Reiniger and Schall. The absence of liquid and consequently of electrolytic action renders this class of rheostat more universally serviceable than any form of liquid rheostat we have had under examination.

Wire Rheostats.—These are, for the most part, when manufactured to be used in electro-therapeutic practice, made of German silver wire which alone furnishes sufficiently high resistance for the purpose. The character of the workmanship required to make reliable rheostats of this material and the amount of wire necessary, render them very expensive and few of our American instrument makers have attempted to furnish wire rheostats as a part of the outfit of primary batteries, except occasionally they have been introduced into very expensive cabinets. A well constructed wire rheostat is an instrument of much greater exactness and constancy than any of the forms we have hitherto considered. By care in their construction the amount of resistance can be determined within the minutest fraction of an ohm and the limit of resistance is only to be determined by the expense of construction and the space in which it is desired to place it. Wire rheostats therefore are altogether the best method of introducing a controller into the circuit of a constant current. Certain of the foreign manufacturers, as Gaiffe and Gebhart, Reiniger and Schall, have made such rheostats the controlling elements in many of their better forms of constant current batteries and thereby making them, so far as this feature is concerned, very accurate and reliable instruments.

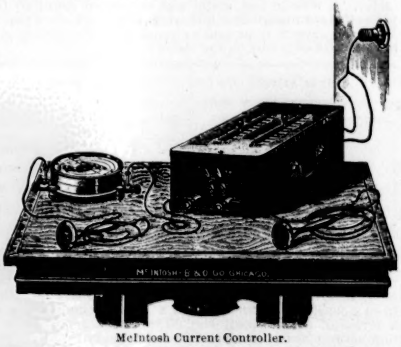
CONTROLLERS FOR DYNAMO CURRENTS.

Your committee has, since our last meeting, given considerable attention to that class of instruments designed to employ the constant currents generated by dynamos used for electric lighting and other commercial purposes which are oftentimes available for physicians' use. By employing a constant current so furnished all the perplexities and annoyances which attend the maintenance of a primary battery plant are done away with and cush currents and controllers of them are coming more and more into demand.

Among the instruments which have been put upon the market for controlling dynamo currents for general therapeutic work, the committee has been furnished for investigation the McIntosh Current Controller, the Gish Ideal Rheostat and the Vetter Current Adapter. All of these instruments act upon the shunt principle, allowing a main current to pass through a continuous wire or other material offering a certain amount of resistance and then possessing an additional mechanism by which more or less of this main current is diverted at the will of the operator into the patient's circuit. These devices have the effect of diminishing the original voltage at the same time that they diminish the current, an effect which to some who are engaged in electro-therapeutic work would appear to be of considerable value. We have made somewhat prolonged investigation of the first two of these appliances mentioned and herewith submit the reports pertaining to them:

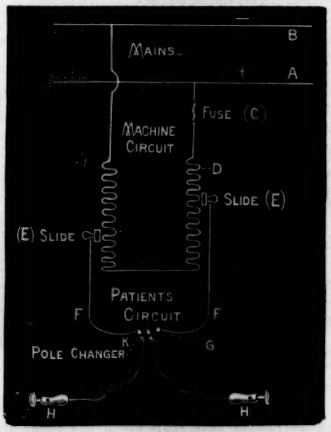
THE MCINTOSH CURRENT CONTROLLER.

This controller is designed for portability, though not at the expense of durability. It is contained in a neat hardwood case 6½ inches x 9 inches x 4 inches, having the index and regulating handles on top, the binding posts for the machine terminals on one end and the reverser and binding posts for patient's circuit on the other end. A handle is fastened to the side for convenience in carrying. A delicate fuse is constantly in the machine circuit, so placed that all the current traverses the fuse before it reaches the point where the patient's circuit joins the machine circuit. This avoids all possibility of a dangerous increase in the current strength in the patient's circuit.



McIntosh Current Controller.

The fuse is so adjusted that a current of one-half an ampere in the machine circuit would instantly melt it and thus disconnect the instrument entirely from the dynamo. Under no circumstances can a harmful current pass through the patient. The reverser is in the patient's circuit to avoid the sparking and burning of contacts that would result from reversing the heavier current carried by the machine circuit. The controller works on the well-known "shunt" principle. The machine circuit consists of a succession of coils, 19 in all, joined in series and having a united resistance of 209 ohms, about the resistance of an ordinary 100 volt lamp. The patient's circuit is so arranged with sliding contacts that the

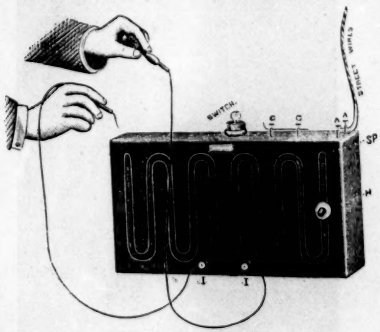


patient may be placed in a shunt to one or more coils. The coils vary in size, but are so proportioned as to modify the current in tenths and hundredths. The sliding contacts are arranged in two rows, each row having its own index. One row is connected with the larger coils, and consequently each coil in this row divides the E. M. F. in the machine circuit by ten. The remaining coils are connected with the other row of contacts, and each coil divides the E. M. F. by one hundred. The two rows may be used singly or together. The contact consists of a heavy brass roller sliding on a flat

brass plate and held tightly in contact with the plate by a flat brass spring. The accompanying diagram illustrates the essential parts of the instrument, and will enable the reader to clearly understand its construction and action. The laboratory test was made with an E. M. F. of 90 volts in the patient's circuit when shunt to the entire number of coils. A resistance of 1,560 ohms was placed in the patient's circuit, in which was included also a Weston milliampère meter. A Weston volt meter was connected shunt to the patient's terminals. The following table will show the E. M. F. and current in patient's circuit, with the sliding contact at various points on the index:

LEFT SLIDE.			RIGHT SLIDE.		
Index.	E. M. F.	Current.	Index.	E. M. F.	Current.
1.	.8 Volts.	.7 Mil'amps.	1. . . .	1.1 Volts.	.9 Mil'amps.
2.	19 "	15 "	2. . . .	2.3 "	2. "
3.	29.2 "	25 "	3. . . .	3.51 "	3. "
4.	40 "	32 "	4. . . .	4.24 "	3.61 "
5.	50 "	40 "	5. . . .	5.35 "	4.5 "
6.	59.2 "	49 "	6. . . .	6.93 "	5.84 "
7.	69.3 "	58 "	7. . . .	8.21 "	6.9 "
8.	80.1 "	67 "	8. . . .	9.2 "	7.8 "
9.	90 "	75 "	9. . . .	10.63 "	8.93 "
			10. . . .	11.89 "	10. "

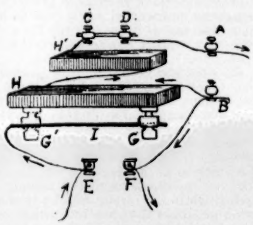
It will be seen from these tables that the voltage and current increase and diminish in corresponding ratio, and this holds true, no matter what the source of E. M. F., whether from a constant current dynamo, an alternating dynamo, or a series of primary batteries. The laboratory contains a number of plants of various forms of primary batteries each made up of fifty cells. The voltage furnished by these varies from 60 to 78, according to the make of battery of which they are composed. This current controller seems to work quite as well on the current furnished from any one of these batteries as upon that generated by the Edison or other constant current dynamo, modifying the E. M. F. and the currents by tenths and hundredths proportionate to the initial voltage, whatever that may be. The dynamo generating the current upon which the foregoing tests were made is used for distributing power to motors throughout the city. The current enters the laboratory with an E. M. F. of five hundred, but this potential is reduced by lamp resistance to the desired amount. It appears, therefore, from these observations that we have in this controller a simple and efficient mechanical device for adapting both constant and alternating currents, or currents derived from primary batteries, to the physician's use.



THE GISH IDEAL RHEOSTAT.

The instrument here represented is another apparatus designed to adapt the commercial dynamo currents to the physician's and dentist's needs. It is constructed on the shunt plan and consists of a main circuit and a shunt circuit, the latter of which is the patient's circuit.

The main circuit within the instrument is made up of a continuous German silver wire, No. 22, wound on a succession of rectangular wooden blocks covered with asbestos paper. Ten of these wire-wound blocks are exposed through a sinuous slit in the face of the instrument, and in this slit the slide moves which serves to vary the amount of current in the shunt circuit of which it forms a part. The remaining blocks, smaller in size, stand in the rear and are not touched by the slide. We here present a diagram of the working plan of the instrument.



AB are binding posts connecting the instrument with the dynamo circuit.

EF are binding posts for connecting the patient with the shunt circuit.

H represents the portion of the German silver wire resistance that can be made a part of the shunt circuit.

H' that part of the resistance wire that can not be included in the shunt circuit.

It will be seen from this illustration that while the instrument is in action the dynamo current constantly flows through the circuit BH, H', C, D, A, and that while the shunt circuit remains open at EF; that is, when no patient is in circuit, or when when the slide is at the extremity of the slot nearest to B, no current flows through the shunt circuit. But should the slide be moved toward H with a patient in circuit between E and F, then we will have between the points A and B what is termed a divided circuit, and the electro-motive force with which the current traverses the shunt or patient's circuit will be determined by the difference in potential existing between the points B and A, and the distance to which the slide G is moved away from the post B.

This instrument was designed to be used on the Edison 110 volt dynamo circuit, but it can also be used on the alternating system. The resistance of the circuit from B to A is 185 ohms, and from B to the extremity of the resistance H 141 ohms. The difference of potential therefore that can be admitted into the shunt or patient's circuit would be 141-185 of the potential difference between B and A. In case that difference is 110 volts, as in the Edison incandescent circuit, the proportion that would be admitted to the patient's circuit when given its fullest capacity would be 84 volts. This electro-motive force applied to a body resistance of 3,000 ohms, which is a fair average when the integument forms a part of the circuit in contact with both electrodes, would give a current

$$C = \frac{84}{3000 + 141} = 26 \text{ ma} +$$

which represents the full capacity of this instrument on the Edison circuit, with the amount of resistance named. The majority of treatments with the constant current, when the skin intervenes at both electrodes, does not require a current to exceed 20 milliampères.

When a mucous surface forms a point of contact for one electrode, the body resistance is very greatly lessened, seldom exceeding 250 milliampères. Should this instrument be employed on the same voltage with this resistance, we would have

$$C = \frac{84}{250 + 141} = 215 \text{ milliampères.}$$

as its full capacity, a current sufficiently powerful to meet the exigencies of the present treatment of uterine fibroids, endometritis, etc.

The instrument is provided with a switch for letting on the current when it is needed and shutting it off when not in use. Also, a gate CD, is left between two binding posts on the top of the instrument, opening into the main circuit, which can be used at any time for increasing the resistance of the main circuit. The instrument is not designed for nor will it heat a cautery. Neither is it suitable for lighting exploring lamps. The same company have other forms of apparatus especially adapted for these purposes.

(To be continued.)

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SATURDAY, AUGUST 3, 1895.

THE RIVAL MONUMENTS AT WASHINGTON TO HAHNEMANN AND RUSH.

The chairman of the Rush Monument Committee, in another column, calls attention to a matter that he justly believes demands the serious attention of the medical men of this country. The erection of a statue to PROFESSOR GROSS by the American Surgical Association, of which he was founder and President, was a very natural and proper demonstration of personal admiration and affection for their late eminent associate and friend, and no one interested in the monument to RUSH ought by word or influence to antagonize the project. Indeed, among the subscribers to the testimonial to GROSS are the names of prominent advocates of a national monument to BENJAMIN RUSH.

It is quite another matter, when a numerically small body of sectarians propose to glorify a foreigner, whose only claim to distinction is that he was the founder of that sect, by erecting at the capital of the Republic as superb a memorial as money can enable its members to procure. The committee on the monument to RUSH very naturally feel mortified that the great body of their professional associates, who at the annually recurring sessions of their representative ASSOCIATION have for ten successive years enthusiastically applauded their efforts and pledged their contributions, forget all about the one and the other when they reach their homes.

BENJAMIN RUSH'S claims to the grateful remembrance of medical men in America can not be contested. As DR. GIHON recently stated in the pages of one of our contemporaries, no one pretends that he was impeccable. He was too zealous, ardent and energetic not to err in word and deed, but his signature, one of the most conspicuous, firm and still legible, on the immortal Declaration of the Independence of these United States of America, written boldly and unhesitatingly by him when other men, who professed fealty to the cause of the rebellious colonies, feared to take this dangerous step, alone entitles him to the most imposing monument his professional brethren can erect.

The project has now gone too far to be abandoned. A monument of some kind will be erected, but whether it will be a commanding structure of artistic excellence, befitting the man and the profession, depends upon the amount of money subscribed. It will be a humiliating contrast if in one portion of the capital city of this country there shall stand the splendid memorial of a little band of homeopaths, and in another an humble pile of bronze and granite, eked to its utmost possibility, by some self-sacrificing sculptor, as the measure of the liberality and appreciation of over one hundred thousand physicians of him, who, in the words of a great living physician, was "the greatest physician this country has ever produced."

The JOURNAL earnestly hopes the profession will realize the necessity for its prompt response to the committee's appeals, and that, as the chairman suggests, every State, Territorial and county medical society will at once take decisive action, and every individual physician contribute of his means toward the completion of this commendable undertaking.

CHOLERA AND YELLOW FEVER.

The news from the Orient in regard to cholera is not reassuring. Cholera is raging in Corea, in the Liao Tung peninsula, in the government of Volhynia Russia, and in Japan. In the latter country 9,000 persons are reported to have been attacked since the outbreak, with a mortality of 5,000. This mortality is about that of the last serious epidemic in Europe, and shows that the world has not yet placed the disease under therapeutic control. We may indeed prevent its spread by careful disinfection, and by supplying pure water instead of contaminated water, but the work of stamping out the disease at its original center seems yet far away. In this, Great Britain has a moral responsibility in the eyes of the world that she can not shake.

The yellow fever has spread from the Island of Cuba to the Island of Puerto Rico, where it is stated that the daily mortality is about 20 per cent. The Spanish troops have suffered greatly in Cuba, and the Cuban patriots have thus had an ally more invincible than armed men. When the island of Cuba is once free and independent, and the military domination suppressed, there will be every incentive to stamp out the yellow fever habitat in Cuba. At present, while

the heel of the despot rests on the "ever-faithful isle," there is no time to seriously consider any sanitary plan, and at no time for the past thirty years have the Spanish masters of Cuba felt strong enough to undertake it. The cutting of a canal from the upper bay to the sea, the cleaning and purification of dwellings, and the reconstruction of house drains, would work wonders in fever-stricken Havana. Whether this generation will see the attempt made is another question. From the personal observation of the editor of this JOURNAL, he is of opinion that no one who has ever seen the stagnant waters of the upper bay, in the vicinity of the Military Hospital, and smelled the vile and nauseous odor emanating from it, could fail to think of the possible change that might be wrought by the construction of a canal or a tunnel to the sea. The bluest, deepest water of the Gulf passes along the coast and bathes the rocks at the foot of Moro Castle, but the Military Hospital remains now, as it has for the last century, on the shores of a stagnant sea of sludge and slime.

VARIOLOUS IMMUNITY OF THE FETUS FROM THE MOTHER.

At a recent meeting of the Paris Academy of Medicine, M. HERVIEUX read the report of the following case by DR. ANNET, a military surgeon: A young woman of 24 was re-vaccinated successfully in the fifth month of her first pregnancy; her child was vaccinated at three and at six months, the latter only being successful. "So far," says DR. ANNET, "nothing is unusual, for we know that immunity transmitted from the mother rarely persists beyond five or six months." But the patient became pregnant again in 1894, four years after, and this second child was inoculated at the second, seventh and eleventh months; all attempts failed, though the vaccine matter had been used in several other children and always with success. M. ANNET expressed the opinion that this immunity could only have been conferred by the blood of the mother. M. HERVIEUX, in discussing the case, said we do not recognize this transmission of immunity as one of the possibilities. A more acceptable supposition is that the second child was refractory, not from maternal immunity, but by reason of its individual constitution. We see persons who are repeatedly vaccinated with the greatest precautions, with irreproachable vaccine matter, and always unsuccessfully. But suppose they were inoculated ten times without success. Nothing enables us to state that the next time would fail also. So, for the child mentioned by DR. ANNET, a fourth vaccination might have succeeded.[1]

M. HERVIEUX might have materially fortified his position, had it been necessary, by a reference to that wonderful storehouse of facts and philosophical deductions—"Original Investigations on the Natural History (Symptoms and Pathology) of Yellow Fever," 1854–1894, by DR. JOSEPH JONES, of New Orleans. In his second chapter, on the "Communication of Yellow Fever Through the Mother to the Fetus in Utero,"[2] he has brought together a number of important observations covering a period of more than a hundred years, bearing upon the transmission of the poison of smallpox through systems, "themselves entirely protected from its influence and demonstrating the existing of the poison in a potential active state, as shown by the excitation of genuine smallpox in the fetus in the womb of the mother protected by previous inoculation, vaccination and smallpox."

The conclusion is unavoidable that no degree of immunity is conferred upon the fetus through any variolous or vaccinal experience of the mother, and the lesson of DR. ANNET'S case, for the sanitarian and health officer, is to repeat vaccination whenever there is exposure to the smallpox contagion, and often enough to demonstrate insusceptibility.

1 Bull. de l'Acad. de Med. No. 28, 1895.

CONTROL OF MEDICAL PRACTICE IN RHODE ISLAND.

After eleven years of persistent effort by the reputable members of the profession—to which the State Board of Health afforded valuable assistance—Rhode Island has finally succeeded in securing legislation which should result in ridding the State of at least a large percentage of the quacks, incompetents and itinerants who have heretofore fleeced the public, uncontrolled and unmolested. The Medical Registration Act, which went into effect July 16 ult., provides in substance the following conditions for the future practice of medicine in the State:

1. The possession of a diploma from a reputable medical college, indorsed by the State Board of Health as such. Only such colleges as require a three years' graded course are to be considered as having the indorsement of the Board; or

2. Satisfactory evidence that the person making the application was reputably engaged in the practice of medicine or surgery in the State prior to Jan. 1, 1892. This evidence to be subscribed to and verified by oath, in affidavit, and such statements, if wilfully false, shall subject the affiant to conviction and punishment for perjury; or

3. Submission of the applicant—if not included in either of the foregoing—to an examination by the State Board of Health to determine the possession of sufficient knowledge to practice medicine and surgery.

Under the first condition it is necessary for each and every practitioner to present his diploma to some member of the State Board of Health for verification, as well as to swear to the ownership for proof

2 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, VOL. XXIII, p. 942.

of identity and possession before a notary. Under the second condition the applicant is obliged to make affidavit that he is not and never has been an itinerant doctor, and will not become such in any capacity under a certificate if granted; and that he was reputably and continuously engaged in the practice of medicine and surgery in the State of Rhode Island prior to Jan. 1, 1892. Those not having the privilege of application under the so-called "time limit" or second condition, and provided for under the third condition are allowed an examination before the Board to prove their ability to practice.

Dr. Swarts, the Secretary of the State Board, says that "while this law is not all that could be desired, it has already been of value in suppressing the intentions of many irregular practitioners who are daily excluded from practice in other States, and who, making application, find that they can not meet with the requirements of the act." And adds that "in the execution of the law the Board will make every effort to see that the full meaning of the law is applied, but it will be of the greatest assistance, as it has already been, if each practitioner would consider himself as a member of a sub-committee of the Board and advise in regard to individual cases which may come to his attention, in regard to midwives, "time limit" cases, disreputable or unprofessional conduct in the commercial meaning of the word, and including any questionable methods of regular practitioners."[1]

Of the estimated 600 physicians in the State two-thirds of the number had complied with the law before the expiration of the sixty days after its passage and, consequently, before it actually took effect. This is cited as evidence of the favor with which the act is regarded by the profession generally.

THE RELATIONS OF THE NEWER PSYCHOLOGY TO MEDICINE.

It is at once an advantage and also practically a disadvantage to medicine that in its widest sense it embraces a greater compass of sciences than almost any other human occupation or profession. The physician should be a man of broad general culture —that is, the ideal physician should be such—as well as of minute and accurate knowledge, and the difficulty of the combination is found in the necessary limitations of the human intellect. This difficulty increases with the years and the result is an ever-growing tendency to specialism in the cities, and a greater dependence of the general practitioner upon the specialist in every line. The latter, on the other hand, unless he be a neurologist, who ought at least to be, in his way, a sort of "glorified general practitioner," is liable to become narrow in his medical ideas with the narrowing of his field and to give little attention to matters outside his own limited territory.

It is only occasionally that a physician cultivates or gives very much attention to the lines of investigation that lie on the border lands, so to speak, of medical science; there are proportionally not many indeed who see the practical side of purely scientific investigations into what its cultivators like to style the "newer psychology," the experimental as opposed to the old introspective psychology. Whatever it may have of medical interest, they are inclined to think can be taken second hand from those who are willing to glean in this field for the medical publications. To a certain extent this is true, but it is not altogether so. There is no one who would question the importance of the physiology of the senses, and their psychology is only a step further and one that has most important bearings on their pathology and their utilization and management in disease

While experience has taught us to use daily many of the facts deduced from ordinary observation, one trusting to this alone is nevertheless at a disadvantage as compared with one instructed and skilled in even the older psychology of introspection, and with only a slight general knowledge of the newer methods. The multitudinous literature of hypnotism, for example, furnishes abundant illustration of this fact. Most of it is of little value and much only cumbers the ground and had better never been written.

Taken together with the later discoveries in the finer anatomy of the nervous system, the results of experimental psychology are wonderfully suggestive, and a thorough knowledge of what has been done in this line is almost essential before one can properly theorize on the data acquired by the recent discoveries. We have all known and experienced the symptoms of fatigue, but how much light is thrown on the phenomenon by the physiologic psychology of the day. The disease called neurasthenia, which to many is only a vague term, a sort of limbo to which to consign a large class of cases of indefinite diagnosis without any material lesions, "an ill-defined, motley group of symptoms," which it is often hard to consider as not imaginary, and falling under the same general head as hysteria and hypochondria, is supplied by the experimental investigations of physiologic psychologists on the fatigue of the nerve elements, with a perfectly rational if not absolutely established pathology.

If the pathology of hysteria is to be elucidated, it seems probable that it will also have to be along the same lines, or at least that the psycho-physiologic and pathologic studies will largely aid in bringing it about. Many other questions, such as why is insanity apparently on the increase, why is syphilis followed by tabes and paresis in modern times and among civilized peoples, have answers that are at

[1] Monthly Bulletin, State Board of Health of Rhode Island, Nos. 5-6.

least as probably true as any that have been offered, suggested by the student in physiologic psychology, that it would take too much space to give in detail here.

The whole range of the special senses in their normal and abnormal conditions fall directly under this head, as already indicated, and there is yet another special value of these studies for the physician, in the education as to methods and as to valuation of observed facts that they give. On this account alone it would seem that some instruction in this direction could well be added to the courses of our regular medical schools. But without this, the "newer psychology," the psychology of facts as opposed to that of mere theory, is a perfectly legitimate and highly profitable subject for the occupation of any unoccupied leisure of the scientific physician. And for the nervous or mental specialist some acquaintance with it would seem to be an absolutely essential portion of his professional mental equipment.

PROFESSOR HORATIO C. WOOD.

Our readers will read with pleasure the lecture by America's foremost medical therapeutist, in this issue of the JOURNAL, in the Society Proceedings Department, under the heading of the Cleveland Medical Society. The important subject, the well-known reputation of the lecturer, and the substance of his lecture, make this article one that will, we are sure, be appreciated by our readers.

NEW INSTRUMENTS.

ELECTRIC MOUTH BATTERY.

The object of this invention is to obtain an electric battery which can be worn in the mouth of a person for its therapeutic effects, and also to give strength to the plate when false teeth are worn.

G, gold plate; Z, zinc plate; N C, non-conducting plate.

This battery consists of a non-conducting plate arranged to fit in the mouth, metal plates of opposite electric polarity imbedded in the non-conducting plate, conductors connecting the metal plates, such conductors imbedded in the non-conducting plate, and such metal plates so disposed as to be exposed to the action of an electric excitation by the saliva or other fluids in the mouth, and the organs of the mouth, to form elements completing the circuit of the battery.

We believe this to be the most rational form of electric treatment for cases which are indicated, inasmuch as we have a mild and uninterrupted current which may be made stronger or weaker to suit the case.

These batteries being in close proximity to the brain, the medulla and spinal cord, the air passages and the alimentary canal render it easy for the current to be carried to all parts of the body, thus charging the entire system; hence it may be seen that it would be beneficial in many diseases common to mankind, especially catarrh, deafness, weak eyes, headache, various nerve disorders, stomach and lung troubles, and diseases of the mouth, reducing inflammation arising from regulating the teeth. In inhalation the air would pass through electrified tissue, rendering it ozonized before entering the lungs. In mastication and deglutition electrified food would pass to the stomach.

Will cite a few practical cases, as far as tests have gone, of positive relief; the method being new, have not had time for extensive experiments.

1. Trial for acute gastric disturbance; wore plate and was relieved in a half hour; had no more trouble for two weeks when it re-occurred. Not being satisfied that the battery had caused the relief in the previous case, different medicaments were used without relief; then plate was worn again about seven hours, when trouble disappeared. In several weeks, beer-drinking and smoking brought on trouble with renewed vigor, which was allayed in twenty-four hours by wearing plate. A series of experiments were kept up with good results.

2. A case of insomnia treated with electric plate from 11 A.M. until 11 P.M. Patient went into a sound sleep, without waking until 9 A.M. next day. The patient expressed himself as having had the most refreshing sleep he had had for years. Treatment is still continued with satisfactory results.

3. Closure of the Eustachian tubes, dullness of hearing and general catarrh of the nares. Plate worn for about twelve hours; trouble almost entirely disappeared. Treatment continued for two days in daytime only. Head and ears clear as a bell ever since, four weeks having elapsed since treatment was discontinued.

L. L. FUNK, D.D.S.

367 Blue Island Avenue, Chicago.

CORRESPONDENCE.

More about Truffles.

PHILADELPHIA, PA., July 26, 1895.

To the Editor:—Referring to your valued JOURNAL of the 13th inst., page 85, I would respectfully call your attention to an error in the article on "Tuckahoe," in the statement that trained dogs are used to hunt the truffle in the Old World; in France, in which nearly four-fifths of the entire production is found, *trained pigs* are used. They are mostly muzzled by a ring around the jaw to prevent their swallowing the delicacy. The sense of smell in these pigs is very highly developed, the truffles being often exceedingly deep underground.

Asking pardon for thus bothering you, I remain,

Yours sincerely, SYDNEY H. BOHN.

NECROLOGY.

WALTER ALFRED MORTON, M.D., of Brooklyn, died July 22, aged 35 years. He was a native of Westmoreland County, Virginia. He was graduated at the medical school of Dartmouth College, in 1889; also at the Long Island Medical College two years later. Since that time he has been a resident of Brooklyn. He was a member of the Kings County Medical Society. His final illness was due to pulmonary tuberculosis, the attack dating from the latter part of 1894.

ALBERT F. TRACY, M.D., of Westfield, Mass., died of pul-

monary tuberculosis, on July 18, after an illness lasting two years. He was a prominent physician and widely known throughout western Massachusetts. He was born in Aurora, Ont., and graduated from Victoria University in Toronto. Dr. Tracy was the husband of Hattie Schell, the authoress, whom he married in 1893. He was a member of the Massachusetts Young Men's Democratic Club, and of the Board of Medical Pension Examiners; also a member of the Massachusetts Medical Society since 1887.

The Rev. James Liddell Phillips, M.D., is reported to have died recently in Calcutta, India. He was a well-known Baptist missionary, and son of a famous missionary, the Rev. Jeremiah Phillips, D.D. He graduated at Bowdoin College, took a medical course at the College of Physicians and Surgeons in this city, and received the degree of M.D. in 1864. He married Miss Mary R. Sayles, of Pascoag, R. I., and went to India in June, 1865. He founded the Bible School in Midnapoor, and was its principal for several years. He returned to the United States in 1885 and became Chaplain of the State Institution of Rhode Island and was subsequently Secretary of the Evangelical Alliance of Philadelphia. He was Moderator of the General Conference in Marion, Ohio, in 1886.

J. Westley Allen, M.D., of Altoona, Pa., July 20, aged 57. ——Herman B. Wittwer, M.D., of Chicago, July 26.——Walter C. Overstreet, M.D., of Monmouth, Ill., July 26.——W. T. Strachan, M.D., formerly of Lancaster, Pa., July 23, aged 65. ——Frances Kyle, M.D., of Sioux Falls, S. D., July 24.——J. B. Lebbond, M.D., of Sioux Falls, S. D., July 24, aged 70.——Augustin J. Dalrymple, M.D., of Baltimore, Md., July 24, aged 65.——Lemuel D. Putnam, M.D., of Grand Rapids, Mich., July 22, aged 72.——Thomas Gunn, M.D., of Chapman, Kan., July 23.——Adam Bryan, M.D., of Detroit, Mich., July 21, aged 66.

PUBLIC HEALTH.

Prophylactic Effect of Sea Air in Tuberculosis.—M. Lalesque has studied the prophylactic and curative action of the change to the sea air of Archachon in 220 subjects sent thither, either threatened with or suffering from tuberculosis in different forms. He gives the following results: prophylactic action, 50 cases, 50 recoveries. Curative action, 170 cases; in the first stage 73 cases—22 recoveries, 39 ameliorations, 12 aggravations or deaths; in the second stage 37 cases—1 recovery, 24 ameliorations, 12 aggravations or deaths; third stage 60 cases—4 recoveries, 21 ameliorations, 35 aggravations or deaths. M. Lalesque observes that the sea air, in common with that of mountains, is notable for its purity.[1]

Regulations for Consumption Sanitaria.—The Comité Consultatif Francais d' Hygiene Publique has formally approved the following regulations, drawn up by M. Netter, for the sanitaria for consumptives: 1, sanitaria should be built upon elevated sites surrounded by cultivated grounds and parks, these making a boundary between the public and the patients, who should confine themselves within its limits as much as possible; 2, each establishment should be provided with a steam apparatus for the purpose of disinfection and through which all the body and bed linen and clothing should be passed before being washed; 3, rooms should be disinfected and re-painted before they are occupied by new patients, and all floors should be covered with linoleum; 4, all excreta and dejecta should be thoroughly disinfected before being disposed of; 5, patients must be prohibited from expectorating elsewhere than in spittoons provided, and these must be scrupulously disinfected every day.[2]

[1] Jour. de Med. de Bordeaux, No. 19, 1895.
[2] Union Medicale, June 22, 1895.

A Plea for Better Registration of Vital Statistics.—Dr. J. F. Kennedy, Secretary of the Iowa State Board of Health, commenting upon a decision of the Iowa Supreme Court, upholding the validity of the statute requiring physicians to report births and deaths occurring in their practice, urges that a faithful registration of births and deaths—"the alpha and omega of life"—would facilitate the identification of individuals and thereby aid in the settlement of estates, assist in the detection of criminals, afford data for the estimation of life expectancies, furnish to medical and sanitary science important and valuable information regarding the state of the public health, throw light upon the causal conditions under which prevailing diseases occur, thus leading to intelligent methods for prevention, and afford reliable information as to climatic influences in the production of sickness and death. He believes, from personal observation as a physician extending over a period of more than thirty-seven years, and from the meager and imperfect reports in his office, that Iowa enjoys an enviable position as to salubrity of climate, physical vigor, high birth rate, proportionately low death rate and longevity, and is sure the figures could be produced to verify this belief if only the physicians of Iowa could be induced to report as required by law. He thinks that patriotism and State pride should overcome any hesitation on account of inconvenience or want of pecuniary compensation. But "if the profession in Iowa, in the face of the statute and its expressed penalties; in view of the decision of the Supreme Court; in view of the incalculable benefits of these statistics to the profession and to science, and in view of their material advantages to Iowa, can not be induced to furnish these reports, I hope every physician in Iowa will unite in petitioning the next General Assembly to remove from our statutes every section and syllable relating to the registration of vital statistics."[1]

Bovine Vaccine Plant at Dublin.—A very thorough and intelligently managed vaccine establishment is possessed by the profession in Ireland. The *Press and Circular* reports concerning a special investigation of the institution as follows:

"We have had an opportunity of observing the process of preparing calf lymph in the establishment recently opened by Dr. Denham, at Sandymount, near Dublin. The calves, three or four months old, are obtained from graziers, in such number as may be required, and are stabled at the Vaccine Institute, a house which is kept rigorously clean and is provided with fresh air by an electric fan. Upon admission, each of these calves is examined by the veterinary surgeon to the Institute, to insure that no signs of disease exist. Their temperature is taken, and a pulmonary examination is made. If found perfectly healthy the belly of the calf is shaved. The table upon which the animal is laid is specially constructed for the purpose, the top being capable of being tilted from the vertical to the horizontal position. The animal is ranged up against it when it is vertical, and its head secured in an ordinary head-stall with a pillow underneath to prevent the animal hurting itself. A strap is drawn around the body, and the table is then tilted to the horizontal position with the calf upon it, and the feet are strapped down with padded straps. The belly is then shaved and the surface washed first with boracic solution and afterward with sterilized water. The inoculations are then made, to the number of about thirty, on the denuded surface with lymph, which has been previously tested and found free from any taint. This having been done, the animal is returned to the stall. As the vaccine fever develops, the temperature usually goes up from 102.2 to 102.5, 102 being the normal temperature of the calf, and, as the vesicles develop, recedes again to the normal. One hundred and twenty hours after inoculation the calf is again laid on the table and the lymph is taken off, in which process a clamp like a phimosis clamp and sundry other instruments, all sterilized, are used. The lymph thus collected is then brought to the laboratory, where it passes into the hands of Professor MacWeeny, who, by microscopic examination and germ cultivation, tests its purity. This necessarily consumes a good deal

[1] Iowa Health Bulletin, July, 1895.

of time, during which the lymph stock is kept in a refrigerator. If it is pronounced to be quite pure it is then placed in a 'pulper' or mixer, for the purpose of incorporating it with glycerin and sterilized distilled water. This instrument is driven at a very high rate of speed by an electric motor, and the lymph is delivered from it in a defibrinated condition to be filled into tubes. The lymph is prepared according to three methods: *a*, it is transferred to points direct from the calf and without any admixture whatever; or *b*, it is defibrinated, as above stated, in the electric 'pulper' with a small quantity of glycerin and water, and put into tubes; or *c*, it is made up sufficiently liquid to press into tubes. The only point in this method of procedure which might be open to question, all the rest being strict scientific work, is the care which the animals receive when in the Institute, and this we have specially noted. As far as we could observe, every possible precaution and every care suitable for a human being under similar circumstances was taken with these animals."

Mob Violence Against Sanitation.—Violence, with murder, has been, it is believed, the indirect result of the efforts of Europeans, to apply modern methods of sanitation against cholera in Asia. The riot took place at Jeddah, on the Red Sea, and the rioters are supposed to be Bedouins. In the course of the outbreak, the new cholera hospital was destroyed. It is highly probable that the outbreak was a kind of reaction, or protest, against the new sanitary regulations adopted at Jeddah to prevent the spread of cholera. Jeddah is a port on the Red Sea about half way between Aden and Suez, sixty-five miles from Mecca, the birthplace of Mohammed. The pilgrims to Mecca usually embark there, and at this season of the year there are often 100,000 of them in the city. These pilgrimages have often been the starting point of a rapid spread of the disease. The Paris Sanitary Conference arrived at the unanimous conclusion that a great source of danger was to be found in the filthy condition of the wells and water tanks around Mecca and along the shores of the Red Sea. These reservoirs are open to all pilgrims, and the tanks serve as bathing places as well as for the supply of drinking water. The wells have been deepened and covered over, regular bathing places have been provided, and no one is allowed to bathe in the tanks from which the drinking water is supplied. The pilgrims who had been accustomed to lower their filthy skin bottles into the wells, have this year had pure water measured out to them, and have not been allowed to draw for themselves. As the wells are accounted holy, some dissatisfaction was to be expected, and the late outbreak is doubtless due to it. The pilgrims regarded as an unwarrantable restriction of their liberty, the salutary regulations designed to save their lives and the lives of thousands to whom they might communicate the disease.

Changes in the New York City Board of Health.—On July 23, the Board of Health of New York city retired at his own request, Dr. John T. Nagle, Registrar of Vital Statistics. Dr. Nagle has asked for this action on the score of ill health. By the unanimous vote of the board, Dr. Nagle was retired on an annual pension of $600, to begin on August 1. Dr. Nagle is the first officer of the Health Department to be retired under the pension law passed last winter. He was himself the father of the law. It allows a maximum pension of $1,200. The Health Board yesterday promoted Dr. Roger S. Tracy to the office of Registrar of Vital Statistics, with a salary of $3,500 a year. He has been the Chief Statistician of the department for several years. Dr. Nagle was the chief medical officer of the Third Division of Cavalry in the Civil War, and he lately received a government pension. He was appointed a Sanitary Inspector in the Health Department in 1869, and for many years he was at the head of the Bureau of Vital Statistics. The new Registrar, Dr. Tracy, was born in Vermont in 1841, was graduated from Yale College in 1862, and took his degree from the College of Physicians and Surgeons in 1868. He was on the medical staff of Bellevue Hospital for some time, and later studied medicine in Europe for a year and a half. Soon after his return he entered the Health Department, and some years later became Registrar of the Bureau of Vital Statistics, which position he occupied until Dr. Nagle was appointed to the position.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General of the Marine-Hospital Service:

SMALLPOX—FOREIGN.

Austria: Trieste, June 30 to July 6, 1 case.
Egypt: Cairo, June 17 to 24, 1 death.
England: Southampton, July 6 to 13, 1 case.
Germany: Prague, June 30 to July 6, 5 cases.
Holland: Rotterdam, July 6 to 13, 2 cases.
Hungary: Buda-Pesth, July 1 to 8, 7 cases, 1 death.
India: Calcutta, June 8 to 15, 19 deaths.

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, July 13 to 20, 7 cases.
Michigan: Battle Creek, July 23 to 30, smallpox reported: Detroit, July 23 to 30, smallpox reported; Olivet, July 23 to 30, smallpox reported.
Missouri: St. Louis, July 13 to 20, 1 case, 1 death.

CHOLERA—FOREIGN.

India: Bombay, June 11 to 18, 1 death; Calcutta, June 8 to 15, 27 deaths.

YELLOW FEVER—FOREIGN.

Cuba: Cienfuegos, July 13 to 30, 2 deaths; Havana, July 11 to 18, 18 deaths; Sagua la Grande, July 13 to 20, 1 case.
Mexico: Vera Cruz, July 11 to 18, 5 deaths.

HAVANA, CUBA, July 20, 1895.

Sir:—In confirmation of my telegram of the 19th inst., informing you that "yellow fever had, within the last few days, increased considerably among civilians," I have now the honor to say that there were eighteen deaths from that disease during the week ending July 18, and that a large part of them occurred during the last few days of that week. As all of these deaths were among civilians in different parts of the town and none among soldiers, it indicates a tendency in the disease to spread in the city. Up to the present time very few or none of the recently arrived soldiers stay in the city longer than it takes to be formed into battalions, get clothing, etc., and be forwarded to the territory of the insurrection. Very respectfully,

D. W. BURGESS,
U. S. Sanitary Inspector, M.-H. S.

ST. PETERSBURG, July 8, 1895.

CHOLERA IN RUSSIA.

In the government of Volhynia from May 26 to June 22, 1895, there were 136 cases of cholera resulting in 40 deaths.

A conference was held lately in the Ministry of Foreign Affairs between the representatives of Austria-Hungary and Russia, with a view to carrying out the resolutions of the Dresden International Sanitary Conference, concerning measures to be adopted in cholera time for the frontier traffic with Russia, based upon the experience obtained during the last cholera epidemics in Russia and Galicia. A complete understanding was arrived at in reference to all measures for the control of cholera, should it arise in the neighborhood of the Russo-Austrian frontier, and safeguarding the frontier traffic as far as possible.

Further, the Russian Government, fearing that cholera may be carried into Russia *via* Vladivostok from Japan, is taking every precaution. Only a few days ago, six physicians were sent to Vladivostok from the Medical Department at St. Petersburg, with orders to keep strict watch and use all possible means of protection.

JOHN KAREL, Consul-General.

SELECTIONS.

Anchylostoma Anemia in the Vicinity of Naples.—Paolucci (*Riforma Méd.*, 1894) records four cases of anchylostoma in 1894. This malady appears to be limited to the country on the eastern boundary of the city, where the poor tenants cultivate vegetables in fields, watered by dirty streams polluted by manure, and to which they fetch from the city, dung

and a variety of filthy material. All four patients were accustomed to eat freely raw vegetables and to drink the dirty water in their fields. The sickness manifested itself in the usual way with pains in the epigastrium and abdomen, loss of appetite, severe anemia, increase of the white and decrease of the red blood corpuscles, and diminution of the hemoglobin. There was no accompanying enlargement of the liver or spleen, and no hemorrhage. The patients sought the hospital on account of the increasing pallor of skin and mucous membrane, the emaciation and debility. Relative to the therapeutics, the writer praises, after a preliminary emptying of the bowels by sulphate of magnesia or soda, the use of ethereal oil of filix mas in capsules (about 7. gm. in two days), after which incredible quantities of anchylostoma, well developed, were found in the stools. Eggs could be discovered even until the eighth day. He found not the least result after a trial with creosote.—*Centralblatt für innere Medicin.*

Immunity and Susceptibility with Reference to Cholera.—(Metschnikoff in *Wiener Med. Presse.*) The striking facts of immunity of many to cholera, and of the influence of time and place (the two factors made specially prominent by Pettenkofer) on the course of a cholera epidemic, the writer believes he can for the most part explain, on the strength of numerous experiments and observations, through the varieties of bacteria in the intestinal canal. He noticed, for instance, that different bacteria in plate cultures exerted a distinctly favorable influence on the growth of cholera vibrios, among others especially sarcinæ and the white yeast, called torula. On the other hand, he found bacteria among which was the bacillus pyocyaneus, which plainly retarded the growth. By reason of these facts, he examined closely the bacteria in the human intestinal canal in regard to their behavior toward the cholera vibrio and here also he was able to cultivate the previously mentioned torula and a sarcina and a bacillus not liquefying gelatin, all favorable to cholera; and from the intestine of animals he isolated several varieties of bacilli and a thick coccus, having an opposite tendency. He comes to the conclusion that the bacteria of the intestinal canal play an important rôle in the immunity and susceptibility of man and animals toward cholera. Through this, the fundamental truth that the vibrio of Koch is the specific cause of cholera, can be brought into accord with the results of epidemiology and especially with the influence of time and place on the course of a cholera epidemic.—*Centralblatt für innere Medicin.*

Preliminary Report of 1,000 Abdominal Operations by Professor Schauta.—During the ten years (Nov. 23, 1884, to Feb. 10, 1894) the total mortality in these cases was 10.7 per cent. (104 deaths); 46 deaths were traced to the operations. In 54 cases septic processes caused death. Of the 46 deaths directly due to the operations, in 35 there were septic processes, in 8 secondary hemorrhage, in 2 intestinal perforation, in 1 acute anemia. Of the remaining 58 deaths, 12 were due to cardiac weakness, fatty heart and the anesthetics. Of 11 exploratory operations, 7 were fatal. The operations are next arranged in 16 groups: 1, ovariotomies, 198 cases, 182 recoveries, mortality 8.1 per cent.; 2 deaths from operative sepsis, and 2 from secondary hemorrhage; together 2.2 per cent. In 12 deaths indirectly the result of operation, were 2 cases of infection with streptococci from the contents of tumors; 2, adnexa operations 313 for chronic inflammatory affections. Of these 290 were pyosalpinx, ovarian abscess, salpingitis, oöphoritis; 259 times the adnexa were removed on both sides; in 75 times there was discharge of pus; in 27 cases gonococci were found in the pus; in 13 streptococci; in 4 staphylococci; in 5 diplococci whose nature could not be immediately decided; in 1 the bacterium coli commune. In the 25 remaining cases either no bacteriologic examination was made or the pus was found sterile. Of the 290 cases, 273 recovered, mortality, 5.5 per cent. Five laparotomies for hydrosalpinx with 2 deaths (1 pneumonia, 1 peritonitis); 5 for hematosalpinx; 5 for tubercle of the tube with 1 death from intestinal perforation. From these 313 operations, 20 deaths, 14 due to the operation; 3, castration. 56 cases, 2 deaths from secondary hemorrhage; 4, Porro's Cæsarean section, 7 cases (2 for stenosis of soft parts, 1 for osteomalacia, 2 for existing infection of uterus, 2 for rupture of uterus); 5 survived, 2 children lost (dead before removal). Conservative Cæsarean section with suture, 37 cases, 16 times for absolute narrowing of pelvis, 15 for relative, 4 for eclampsia, and 1 for tumor causing stenosis of vagina. All the children survived; 4 mothers died, 1 from sepsis; 5, supravaginal amputation of uterus, 74 cases, 13 deaths; 6, supravaginal amputation with retroperitoneal provision for pedicle, 2 cases, 1 death; 7, myomectomy (Schröder) with intraperitoneal provision for pedicle, once with unfavorable result (sepsis); 8, supravaginal amputation with interperitoneal suspension of stump (Maydl), 4 successful cases; 9, enucleation of nodular myomata by laparotomy, 18 cases, 14 recoveries; 10, by ventrofixation, 77 cases, all recovered; 11, total extirpation of uterus (by laparotomy) 8 cases, 4 for myoma (1 death), 4 for carcinoma (3 deaths); 12, total extirpation by vagina, 181 cases, 14 deaths; 13, ventro-vaginal total extirpation, 8 cases, with 5 deaths from sepsis; 14, sacral total extirpation for carcinoma of the uterus, 15 cases, with 5 deaths; 15, laparotomy for extra-uterine pregnancy, 49, with 4 deaths; 16, in this group are included laparotomies for various other indications. The most interesting is one for purulent peritonitis following abortion.—*Centralblatt für Gynäkologie*, from *Wiener med. Wochenschrift.*

MISCELLANY.

Change of Address.—Dr. G. K. Dickinson, to 278 Montgomery Street, Jersey City, N. J.

The Atkinson Medical Society Register.—Dr. W. B. Atkinson, of 1400 Pine Street, Philadelphia, Pa., has now in press his "Register of Medical Societies." It is desirable that no society be omitted, and the publisher requests that secretaries of societies will promptly furnish him with data for publication.

Curran Anecdotes.—Curran's ruling passion was his joke, and it was strong, if not in death, at least in his last illness. One morning his physician observed that he seemed to "cough with more difficulty."

"That is rather surprising," answered Curran, "for I have been practicing all night."—*Ex.*

Ventilating Warships.—Commander Bradford of the inspection and survey board has been chairman of a sub-board which has been examining into the methods for ventilating warships. This has become a very serious problem in the building of the Navy, and several different plans have been suggested. The fresh air is pumped in and the foul air pumped out by fans, this being found the best practicable method. The motive power for these fans is one that has caused considerable discussion. A suggestion which meets with a great deal of favor and which may be recommended by the board is to conduct the power by electric wires, which avoid the heat of the steampipes and the large openings through the bulkheads and save space in the apartment where the fan is operated, as the motor takes up less room than an engine.

Central Wisconsin Medical Society.—At the annual meeting of the Central Wisconsin Medical Society, held at Baraboo, the following officers were elected for the ensuing year: President, J. E. English, Baraboo; Vice-Presidents, Charles Horst, Baraboo; H. P. Johnson, Beloit; D. Pender, Janesville; M. B. Sharp, Madison; Secretary, C. S. Sharp, Madison.——At the annual convention of the Illinois Pharmaceutical Association, held in Decatur, Ill., the following officers were elected for the ensuing year: President, G. Henry Sohrbeck of Moline; first Vice-President, Thomas Knobel of East St. Louis; second Vice-President, J. W. Blood of Chicago; third Vice-President, W. C. Simpson of Vienna; Treasurer, Dr. H. H. Rogers of Kankakee; Secretary, Frank Fleury of Springfield.

Effects of Serum-Therapy on the Urinary Secretion.—As the result of his recent investigations M. Mongour announces that: 1, hyperazoturia is constant after injections of antidiphtheritic serum; the amount of urea is generally double that found before the treatment and in all cases is above the normal—the more rapid the cure the higher the amount, apparently. 2, this hypersecretion of urea is only to be attributed to serotherapy, since it is not due to thermic

influences or to any modification of diet. 3, it only lasts for the twenty-four hours following the injection, after which the amount of urea decreases until the normal is again reached. 4, the inversion of the formula of phosphates and chlorids seems to be a consequence of the diphtheritic infection. 5, the injections of serum destroy this inversion and bring the phosphates and chlorids back to the physiologic figure.[1]

The Quick Getting-Up After Childbirth—A Matter of Drainage.—Dr. A. Rose has written to the New York *Medical Journal*, July 20, in confutation of the doctrine that lying-in women are advantaged by the prolonged recumbency that is almost universally practiced at the present day. Dr. Rose calls attention to the fact that, a number of years ago, the question was experimentally studied at the obstetrical clinic of Halle, Germany. Five hundred women, after normal confinement, were allowed to rise as soon as they pleased and remained up out of bed as long as they felt like it—*i. e.*, as long as they felt comfortable. Some of these women left the bed for a shorter or longer time as early as the second day postpartum. No ill consequences could be observed in any of these 500 cases. Five hundred other women under similar circumstances, were kept in a recumbent posture, or in bed, according to the time-honored custom, for a week or the well-known superstitious nine days. The result was strikingly in favor of the 500 early risers.

Influence of Variola on Menstruation, Pregnancy, Parturition and the Fetus.—Dr. L. Voigt reaches the following conclusions as to the influence of variola on the uterine functions: 1, variola, both during the period of invasion of the fever and after the appearance of the pustules, causes a congestion of the inner surface of the uterus and this congestion in most cases produces the appearance of the menses or a genital hemorrhage resembling them. 2, the same cause gives rise to abortion or premature birth in half the cases of pregnant women who were vaccinated during childhood. 3, the life of pregnant women is seriously menaced in confluent and above all in hemorrhagic smallpox. 4, hemorrhagic variola is observed much more often in pregnant women than in others. 5, the mortality of pregnant women attacked with variola and who have been vaccinated once during youth is from 30 to 45 per cent., while in that of women delivered during the disease it is 59 per cent. 6, pregnant women who are not vaccinated are in much greater danger than those who are. 7, children of women attacked with variola are in much greater danger than their mothers; nearly all succumb either in utero or shortly after birth from congenital feebleness or they contract variola before or during birth. 8, on account of the great danger to mother and child we should protect pregnant women by a fresh vaccination, and vaccinate newly-born children, if they are robust enough, each time they are exposed to variola.[2]

Murphy's Button.—Mr. Ernest Lane has recently contributed to the London *Lancet* reports of three cases in which he used the Murphy's button, giving a favorable opinion of the device. Mr. Lane has other cases to add to the list that is kept up by Professor Murphy himself. It is not to be expected that the lists of cases are complete, and probably, as in most similar instances of a new operation or procedure, an undue proportion of successful cases have found their way into print. But this applies equally to all other methods of intestinal anastomosis, and in no way invalidates the comparison of the results of using the Murphy button with other modes of performing the operation. The editor of the *Lancet* proceeds to comment in the following conservative and yet commendatory manner, of the button:

"Professor Murphy's button has now been largely tried by a great number of surgeons, especially in America and Great Britain, and also on the continent of Europe. The consensus of opinion seems to be that it admirably fulfills the two primary requirements; it greatly shortens the operation, and by its use intestinal anastomosis can be made with great precision, and as a result the mortality of these operations has been greatly reduced. Against this most satisfactory result two facts may be mentioned as a set-off. In the first place the button is a rather complicated and very delicate piece of mechanism; it requires to be made very well, and to be used with gentleness and care. Again, the button, when set free by the separation of the rings of bowel compressed between the two portions of it, may linger for a long time in the alimentary canal; but, so far, experience has shown that this retention of the button is not attended with danger. Too much weight must not be given to these objections to the use of the button. Simplicity of construction is to be diligently sought in all our appliances, and we doubt not that Professor Murphy himself, or some other surgeon with a mechanical genius, will be able to devise some simple method of attaining the same mechanical result. Delicacy of mechanism is not a fatal objection—at most it is a remediable defect; and Professor Murphy's tables show that it is compatible with brilliant operative results. He has certainly succeeded in lifting this whole department of operative surgery—not one isolated operation merely—on to a different and better plane, and has given intestinal anastomosis a position in surgical therapeutics it has never held before."

Fakir Journalism.—Fakirism exists in medical journalism to an alarming extent. To the uninitiated the field of medical journalism is an undiscovered country. It is only after one has been on the inside that he can properly discriminate between those medical magazines which are conducted upon an honest basis and those which claim the earth while possessing little of it. Unfortunately for the respectable, deserving and honest journals, fakirism often presents a guise so attractive, a dress so deceptive, that the cloven hoof is not easily seen. However, sooner or later, the true inwardness of things can be made out and our confidence is once more shaken. There are different ways of running and building a medical journal. One way is to resort to exaggeration to deceive the advertiser: "In less than thirty days our books showed a list of 5,800 paid subscribers," is the statement made by one journal which went up like a rocket, and is now coming down. Such statements would cause Don Quixote and Munchausen to hide their faces in shame. Yet this is a mild-mannered statement compared with some. A certain journal is known to claim a circulation varying from 7,800 to 10,000, and yet never prints more than 1,000 copies, including sample copies and exchanges. And so the tricks resorted to by some might be multiplied indefinitely. There is only one correct way to conduct a medical journal. That is to be honest with yourself, honest with your subscribers and honest with your advertisers. In the course of events this plan will outstrip all others, and will result in the permanent prosperity of the journal and the journalist. One subscriber gained and kept is better for all parties concerned than ten sampled or one hundred claimed by a Munchausen sheet. The inserting of the pictures of nude women within the advertising leaves can not be condemned too severely. It is an insult to the doctor and to the reputable advertiser. Based upon the supposition that doctors delight in the nude and lewd, it is a reflection upon the morality and good sense of the profession. The "female form divine" may look well upon canvas, placed in a metropolitan gallery of art, but certainly is out of place in a medical journal which reaches the eyes of the doctor's family, and often is read by the doctor's patients. The frantic efforts of a job printer to herald his lack of good taste are very much in evidence. We hope soon to see the last of this kind of fakir journalism.—*Tri-State Medical Journal.*

Chancre of the Eyelids.—Mr. Simeon Snell, of Sheffield, reported to the Ophthalmological Society of Great Britain a number of *outré* occurrences of primary syphilis, inclusive of nine cases of palpebral chancre. In the discussion of the subject two or more speakers referred to the affection as being one that was not rare in their practice, one specialist going so far as to say that Mr. Snell's paper was chiefly interesting and important from the point of view of diagnosis.

[1] Jour. de Med. de Bordeaux, No. 19, 1895.
[2] Am. Soc. Med.-Chir. de Liege, No. 5, 1895.

Another speaker averred that cases of this lesion are oftentimes so slight that the patients may recover without resorting to hospital treatment. Mr. Snell is reported, in the *Press and Circular*, to have said he had collected notes of nine cases of chancre of the conjunctiva, and he related one or two of the more typical, observing that very few of such cases had been reported, though they could not be very rare, judging from the number that came under his observation. The first case was that of a woman age 21, with a chancre at the internal canthus, also involving both eyelids, the lower more than the upper. The caruncle was also implicated. The ulcer was the size of a shilling, and there was much induration. The gland in front of the ear and the submaxillary gland were enlarged. She was a nurse, and had probably caught the disease from the infant, the offspring of syphilitic parents. She was engaged to be married at the time, but the marriage was postponed until nine months later. She has been pregnant six times, but has never gone to full time. The sixth child, the only living one, was now 3½ years of age. It was healthy until ten months of age, when it developed signs of congenital syphilis, and had since had fits, followed by paralysis. The patient herself was well and healthy looking, but there was some epiphora marking the site of the chancre. There was no history of her husband having suffered from the disease. The second case was that of a man, age 30, who came on September 20. He was married, and had had five healthy children. He said he had cut his head open, and had washed the wound with some blood-stained fluid, the accident having occurred in a slaughter-house. A month later a small spot formed, and when he presented himself there was an ulcerated surface, with indurated base and raised edges involving the whole of the outer surface of the right upper eyelid. The præ-auricular and cervical glands were enlarged. The patient suffered, among other things, from an eczematous condition of the penis and scrotum. His wife came in June, 1888, having had lumps in the groin, with ulceration of the tongue, etc. The third case was that of a man age 55, with a chancre on the right inner canthus, involving both eyelids at the junction. The præ-auricular gland was indurated. The ulceration healed in six weeks. Nothing was made out with respect to the means of infection, but he lived in a model dwelling-house in which there were only four towels for eighty persons. The other cases more or less resembled those he had related. The ages varied from childhood to adult life, and comprised four males and five females.

Advertisements of Secret Remedies.—The following circular has been issued:

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

To the Editor and Publisher:

Dear Sir:—As a committee appointed for that purpose, we desire respectfully to call your attention to the following extracts from Minutes showing the action taken by the Trustees of the AMERICAN MEDICAL ASSOCIATION and by the Medical Society of the State of Pennsylvania, respectively:

"REPORT OF THE TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION.

"BALTIMORE, MD., May, 1895.

"During the year no advertisements of secret remedies have been accepted that were not accompanied by a formula, but to still further comply with what appears to be the desire of a large number of those interested in the highest success of the JOURNAL, the editor, with the termination of the present contracts, has been instructed *to accept no advertisements of medicinal preparations, the proprietors of which do not give a formula containing the official or chemic name and quantity of each composing ingredient to be inserted as a part of the advertisement.*"

"CHAMBERSBURG, PA., May, 1895.

"*Resolved*, That the Medical Society of the State of Pennsylvania congratulates the AMERICAN MEDICAL ASSOCIATION upon the decision of the Trustees to exclude unethical advertisements from the JOURNAL of the ASSOCIATION.

"*Resolved*, That a committee of three be appointed to communicate with the editors and publishers of medical journals in the United States, calling their attention to this action of the AMERICAN MEDICAL ASSOCIATION, and requesting them to accede to the wishes of the profession by adopting a similar rule."

Allow us also fraternally to state that: we believe that the best interests of medical men are coincident with scientific accuracy, so far as this can be obtained; that the practitioner of medicine should therefore know in all cases, the character of the drug, and the formula of the preparation or chemic compound that he prescribes; that the use of a secret preparation or nostrum is undeniably unscientific, and can not be intelligently defended; that, hence the advertisement of such preparations by scientific journals is out of place; its effect being to promote quackery and discourage scientific prescribing; that we believe the exclusion of such advertisements will aid the circulation of medical journals and give them a dignity and character not obtainable without such exclusion; that the hearty manner in which the action of the Trustees of the AMERICAN MEDICAL ASSOCIATION and that of the Medical Society of the State of Pennsylvania was received, shows the very cordial indorsement by the profession of the policy here recommended. We, therefore, most earnestly ask your careful attention to this subject, hoping and in behalf of this society requesting, that you will adopt a similar rule to that of the Trustees of the AMERICAN MEDICAL ASSOCIATION.

Very respectfully yours,

(Signed,) Special Committee:
S. S. TOWLER, M.D., Marienville, Pa.
J. J. BUCHANAN, M.D., 1924, Penn Avenue, Pittsburg, Pa.
C. H. THOMAS, M.D., 1807 Chestnut Street, Philadelphia, Pa.

To the Members of the Profession of Medicine in the United States.—The following from the *Evening Star*, of Washington, D. C., of Saturday, July 22, 1895, is commended to the careful, thoughtful consideration of every member of the profession:

"THE HAHNEMANN MEMORIAL—A GRANITE ELLIPTICAL CURTAIN BEHIND THE BRONZE STATUE—TRIBUTE OF THE AMERICAN HOMEOPATHIC INSTITUTE TO THE PHILOSOPHER AND PHILANTHROPIST.

"At the recent meeting of the American Institute of Homeopathy at Newport, R. I., the committee on the memorial to Hahnemann, consisting of one physician from each State and Territory, with the indefatigable worker and father of the project, Dr. J. H. McClelland, of Pittsburg, as chairman, made its report. The committee secured the assistance of several artists, notably J. Q. A. Ward, and an advisory committee, composed of five well-known members of the American Sculptors and Architects' League—three sculptors and two architects. They called for competitive designs from every source and country, offering prizes for the best three. The advisory committee, Messrs. Daniel C. French, George E. Bissell, Thos. Hastings, Olin L. Warner and Russell Sturgis, announced that, in their judgment, the first prize of $500 should go to the design of Charles H. Niehaus, of New York, the second prize of $300 to Joseph Loester, of New York, and third, of $200, to Herbert Adams, of Brooklyn. Marsh, Israels & Houder are the architects associated with Mr. Niehaus in his design, which has been accepted on the expert report by the monument committee. The description of the monument prepared by the committee says:

"The monument is a true ellipse in plan, its fundamental motive being the Greek exhedra form. The main lines of the central portion present a flat curtain wall with decorated tympanum above the impost. This, together with the projecting lines of the ampures, forms architectural vertical divisions of this elevation, which is thus resolved architecturally into component parts, resulting in a well-proportioned and equally balanced composition. Rising from the platform in front of the central portion is a simple pedestal supporting the statue, upon the face of which appears the inscription '*similia similibus curantur.*' Other inscriptions and decorations are of a character significant of and glorifying the work, methods and results achieved by the great reformer. The upper portion of the niche behind the statue it is intended to decorate in glazed mosaic, in colors, of a design composed of the foliage and flower of the cinchona plant. On either side of the arch are decorative emblems in bas relief—a bowl and serpent, the symbols of wisdom, and a lamp and book, typical of knowledge and instruction. The former in association with a palm branch, the latter with a wreath of laurel. The keystone of the arch bears a lion's head, the symbol of strength in leadership. Upon the rear the date of erection appears across the center in Roman numerals and the dates of Hahnemann's birth and death, 'Meissen, April 10, 1755,' 'Paris, July 2, 1843,' encircled with laurel wreaths, are inscribed to the right and left.

"In the center, filling the tympanum of the arch, appear

two figures in bas-relief, emblematic of the science and art of medicine. Underneath this is a fountain in the form of a fluted basin fed by a stream of running water issuing from a carved dolphin; thus symbolizing the temperance Hahnemann practiced and taught. The style of the design is essentially Greek in spirit and in its form. The statue itself is in bronze. The features will be faithfully copied from the bust by David.

"The commemorative tablets are placed in two panels, on either side of the niche, upon the curved walls, representing in bas-reliefs of standard bronze, periods of Hahnemann's life. The monument is to be built of the finest grained white granite, except the statue and entablatures, which are to be of antique bronze. The ground dimensions are 43 by 30 feet, and the height 22 feet.

"The cost of the memorial will be $50,000, of which $29,000 has been subscribed. No particular site in Washington has been selected as yet. Local homeopathic physicians state that there is one which has the preference, but it is not known yet whether it can be had."

After this, shall the Committee on the Rush Monument appeal to you again in vain? We, too, had estimated the cost of this monument at $50,000. After ten years, we have collected less than one-tenth this sum. This little band of homeopaths with a like estimate of $50,000, in three years have subscribed *more than half* that amount.

Shall you be willing to place in the same city, and that the capital of this great nation, beside the splendid memorial here described, of a foreign theorist, any less appropriate and artistic testimonial of the great patriot physician of the Revolution? Your committee are not forcing upon you any man of local or sectional reputation. His eulogists are your great men among the living and the dead, in this country and abroad. For the sake of the good name of true Medicine, do not delay this work longer. Let every State, Territorial and county medical society in the United States hold special meetings to act upon it. Let every delegate and member at the recent meeting at Baltimore bear in mind that he was specially constituted at that meeting a member of the Rush Monument Committee, and the duty imposed upon him of collecting funds. Your committee, therefore, earnestly appeal to the professional pride of every reputable doctor of medicine in this country to forward his contribution at once to Dr. George H. Rohé, Secretary, at Catonsville, Md.

ALBERT L. GIHON, M.D.,
Chairman Rush Monument Committee.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended July 20, is as follows: number of deaths (still-births not included): white, 76; colored, 83: total, 159. Death rate per 1,000 per annum, white, 21.51: colored, 49.61; total, 30.56. Still-births: white, 5; colored, 4; total 9. The increase is general, both as to disease and locality. The principal causes of the mortality were lung diseases and maladies incident to childhood. Seventy-nine of the deaths were those of children under 5 years of age, forty-two of which were from diarrheal ailments. With the exception of two fatal cases of whooping cough, there was an entire exemption from dangerous contagious diseases in fatal form throughout the city. It is to be remarked that neither a case nor a death from diphtheria was reported during the week. In the absence of epidemic diseases, the high death rate may very properly be attributed to the long continued high temperature, the maximum of which was 95 degrees, and the mean for the whole period 73 degrees, with high relative humidity.

REPORT OF THE BOARD OF DENTAL EXAMINERS.—The report of the board of dental examiners for the fiscal year ended June 30, 1895, was yesterday submitted to the Commissioners by Dr. H. M. Schooley, its secretary. It states that during the year twenty-five applications for certificates of qualification to practice were received and passed upon. Twenty-three applicants were graduates of colleges requiring a three years' course, and were therefore entitled to certificate without examination. One other applicant passed a satisfactory examination, making in all twenty-four certificates issued since last report. These figures, with those dentists already authorized to practice, constitute a total of 247 dentists legally practicing at the present time.

DROPPED FROM MEMBERSHIP IN THE DISTRICT MEDICAL ASSOCIATION.—A circular letter was sent, a short while ago, to the members of the ASSOCIATION, informing them that certain members "having refused or neglected, for a period of two years, to pay their assessments" are therefore dropped from membership in this ASSOCIATION. The list includes the name of Dr. William A. Hammond. The result of the law suit lately in progress between the Columbia Chemical Company and the Hammond Sanitarium Company consequently is of no interest to the regular profession.

Hospital Notes.

THE Charities Commissioners of Kings County have begun a movement for a new hospital on a site in the neighborhood of the Kings County Penitentiary, on land belonging to the county. Work will begin at once. The building is to cost $250,000. The hospital is to be used mainly for chronic cases, as a kind of "overflow" to the county hospital located in Flatbush. The Board has also appropriated $25,000 with which to repair Flatbush Institution. The patients there now number nearly eight hundred, but there are suitable accommodations for not more than five hundred.

Society Notes.

THE FRENCH ACADEMY OF SURGERY.—Professor Guyon has been elected president of this society in place of the late Professor Verneuil, and Professor Lannelongue as vice-president in place of Professor Guyon, named as president.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 20, 1895, to July 26, 1895.

First Lieut. ALEXANDER S. POETER, Asst. Surgeon U. S. A., extension of leave of absence granted on account of sickness, is further extended two months on account of sickness.

Col. DALLAS BACHE, Asst. Surgeon-General, Medical Director Dept. of the Platte, is granted leave of absence for one month, with permission to apply for an extension of ten days, to take effect on or about July 20, 1895.

LETTERS RECEIVED.

Ashe, Walter R., Lebanon, Ohio; Ansley, W. B., Saltsburg, Pa.
Burchard, T. H., Big Indian, N. Y.; Baker Henry B., Lansing, Mich.; Bovee, J. Wesley, Washington, D. C.; Bleyer, J. M., New York, N. Y.; Beverly, H. A., Smiley, Texas.
Cutter, J. A., New York, N. Y.; Carstens, J. H. Detroit, Mich.; Cincinnati Sanitarium, Cincinnati, Ohio; Chloride of Silver Dry Cell Battery Co., Baltimore, Md.; Chapman, B., Copley, Ohio.
Gihon, A. C., Washington, D. C.
Halloway, S. W., Louisville, Ky.; Humphries, Will C., Acworth, Ga.; Hummel, A. L. (2), Philadelphia, Pa.
Jamieson, T. H., Enfield, Ill.
Krieder, Geo. N., Springfield, Ill.; King, S. H., Narragansett Pier, R. I.; Kierulff, B. F., Marshalltown, Iowa.
Lincoln, D. F., Geneva, N. Y.; Lord & Thomas, Chicago, Ill.
Meyrowitz, E. B., New York, N. Y.; McBride, M. A., Leesville, Texas; Meyer, Theo., Salt Lake City, Utah; Morgan, James D., Washington, D. C.; Mann, E. C., New York, N. Y.
Nenneker, Henry, Haubstadt, Ind.
Oshaldeston, Julian, Chicago, Ill.
Pollock, R. M., Princton, Ill.; Peacock, Chemical Co., St. Louis, Mo.; Parke, Davis & Co., Detroit, Mich.; Pinkham, Geo. E., Lowell, Mass.
Reed, R. Harvey, Columbus, Ohio; Reynolds, F. R., Eau Claire, Wis.; Robbins, W. L., Washington, D. C.
Sharp & Dohme, New York, N. Y.; Scott, W. A., Swanton, Ohio; Stewart, F. E., Detroit, Mich.; Stover, E., Amsterdam, N. Y.; Schieffelin & Co., New York, N. Y.; Smith, C. J., Pendleton, Ore.
Trommer Extract of Malt Co., Fremont, Ohio.
Utter, J. A., Crawfordsville, Ind.
Vetter, J. C. & Co., New York, N. Y.
Walker, A. B., Canton, Ohio; Wyman, Walter, Washington, D. C.; Wirt, Wm. E., Cleveland, Ohio; Weir, F. A., Jesup, Iowa.